The Builder.

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WHEN fatally destructive fires occur, such as those which during the last ten days have violently excited London, much is said about precautions and preventives; fire-engines are put into working order, and fire-escapes are shewn to answer perfectly well when applied experimentally, coolly, and quietly to a house not in flames. In another week the greatest apathy prevails, and continues till the destruction of more lives and property again causes some excitement on the subject, as temporary, however, as that which preceded it.

And all this time, even when fire-escapes are most talked about, and men, till that time improvident, are rushing to insurance-offices to prevent loss of — money, we continue to build houses *as if to burn*,—houses without a single means of egress besides the door,—houses of such a construction that, if once on fire, the chances are a hundred to one that all the interior *must* be destroyed.

The *application* of advice and moral precepts seems little regarded: "Thou art the man," must be whispered in our ears many times before we see the personal value of the lesson. That a similar event to that of which we have deplored the consequences in the family of another may happen to us, seldom enters our mind or leads us to adopt preventive measures.

The outlay for the latter is certain, though small; the danger, though great, is supposed to be doubtful, and the majority are willing to depend on the doubt.

Old Sir Henry Wotton says, "Every man's proper mansion house and home, being the theater of his hospitality, the seate of selfe-fruition, the comfortablest part of his owne life, the noblest of his sonnes inheritance, a kinde of private princedome; nay, to the possessors thereof, an epitome of the whole world; may well deserve by these attributes, according to the degree of the master, to be decently and delightfully adorned." Even much more so, however, ought it to be rendered SAFE, to the extent of his power, so that he may retire to rest without fear of being buried in its ruins or burnt in his bed.

For many years writers have urged the importance of rendering buildings fire-proof, but up to this time nothing has been effected. Count d'Espie's essay, "Manière de rendre toutes sortes d'Edifices incombustibles; ou, Traité sur la Construction des Voutes, faites avec des briques and du plâtre, dites voutes plates; and d'un Toit de brique, sans charpente, appellé Comble Briquetè,"* has given a hint to modern architects in another respect, but has not led either to the adoption of the plan he proposed or of any better. A writer in 1775, in a pamphlet called "Various Methods to prevent Fires in Houses and Shipping," says,—

"As the city of London is so famous for commerce, and merchants of experience and sensibility, they ought to shew an example to other places to keep up their fame, honour, and credit in every thing that is convenient and elegant relating to trade and navigation. Amongst such a number of gentlemen, learned and experienced architects, ingenious builders and craftsmen (who have both increased and improved the buildings of this metropolis beyond the common thoughts of men and the romantic ideas of imagination, where no expense is spared by our nobility and gentry to improve the plan), decorate the building and furnish the apartments, so noble, beautiful, and magnificent, far surpassing the very fancy and fairy-tale romances of our venerable forefathers.

But so strange and unaccountable are the little frailties of human nature, after all these expenses, decorations, and magnificence expended on the costly edifice, among a society of men, so sensible, learned, and ingenious in their several professions, there never was a single idea, or the plan of an hour's thought adopted, to secure the building or the family, who were continually surrounded and living in the middle of combustible wood, from falling a sacrifice to the most trifling accidents of fire; which building and family lieth every night in the year at the mercy of a drunken fellow, with the snuff of a candle, a handful of shavings lying in a bye corner, a little thoughtless boy and girl, or a sleepy servant-maid drying linen at the kitchen fire, besides many malicious accidents, to be entirely burned down and consumed before the morning. Many people wonder that a strong-built house should be so easily consumed; but this wonder ceases when they consider that every thing about us is liable to catch fire; our houses are floored, our rooms partitioned, and the roof covered with fir, a wood full of turpentine, and enriched with two or three coats of painting in oil; besides all our furniture naturally made of wood, without the least material or contrivance to check its fury or prevent its rapid progress in the apartments, or to give us half an hour's warning to consult our reason or friends how to act with safety, in these pressing moments, against such a furious, merciless enemy. These are plain convincing proofs, that the master of every house and family, great or small, in town or country, should endeavour to make use of every precaution that art and nature can furnish to secure himself, his family, and substance from falling a prey to fire, or the sad misfortunes attending fires, to guard against these terrible accidents with all the care and thought of human prudence, to make us and our families live and sleep with safety in our houses, without the fear and dread of falling a sacrifice to these momentary accidents."

The same writer proposed that iron plates should be nailed on the ceiling, doors, and sides of the room, especially on the partitions where lath and plaster are usually fixed. He further suggested that *tiles* might be used for the partitions and floors, instead of iron plates.

Various solutions have been proposed to render woodwork fireproof, and more recently iron joists, plates, and roofs have been invented and are—not used. Even the most simple preparation for escape by the roof is, in many cases, not made; and where it is practicable, so little thought is given to it, that in the event of accident, the means of getting to it would be found wanting in the majority of instances.

The *Examiner*, in an article on this subject, suggests that a sure and easy escape from every floor in *rows* of houses, may be obtained by means of balconies to bed-rooms fronting the street, as well as to drawing-rooms. "In the event of fire the weak and the aged would only have to step out on their balconies, and to pass over to that of the next house, with as little difficulty as getting over a stile. But then the objection is started, that such a mode of communication might be used for improper purposes. The drawing-room balconies, running contiguous, as they do in many streets, might be so used now; but it is not found that they are so used. The communications over the house-tops allow of abuse, but no inconvenience is experienced. A Pyramus and Thisbe might certainly make balconies dispense with a hole in the wall; but the question is, whether the danger of easier access by gallants here and there, or the danger of death by fire is the greater evil? 'Where there's the will there's the way.' If people have resolved to come together, it will not be the want of a communication by a balcony, or the existence of it, that will determine the result; and we repeat that, to the extent to which such communications now exist—the space of a foot or two between not making a separation except to the eye—they are not found to be attended with any inconvenience to privacy or detriment to morals. On the other hand, there is to be considered their service to humanity, as the easiest and surest fire-escape. With balconies to the second-floor rooms of the generality of London-houses, the means of escape would be sufficient; the third floor, or the garrets, having the escape by the roof. Considering the common danger of fire, the great dread of it, and the deficiency of contrivances for escape, the expedient we suggest is entirely deserving of consideration."

What we are anxious to urge, however, at this moment is, the *prevention* of fire rather than the means of escape from it,—the avoidance of the immense annual loss to the community caused by its ravages, and the amount of suffering and degradation which follows. The subject calls for the most serious consideration of all who dwell in this "huge city of tinder-box habitations," and involves a number of points which we shall hereafter discuss.

As regards public buildings and edifices wherein large numbers of persons are brought together, no words are too strong to be used in condemning the want of provision in this respect. Hospitals, union workhouses, and other similar structures should invariably be made incombustible to the greatest practical extent. The new Buildings Act wisely provides with regard to these, and other public buildings within its jurisdiction, that the floors of the halls, corridors, passages, stairs, and landings, and all other ways of ingress and egress within the building, to and from all rooms or apartments used for public congregation, and all galleries connected with such room or apartment, must be wholly supported, made, and finished fire-proof. This will increase the chance of escape for the inmates; but we hope before long to see such a system of construction adopted, at all events in public buildings, as will render a general conflagration impossible.

We refer our readers to a communication on the same subject in the following page.

AERIAL TUNNEL OVER THE MENAI.—The project noticed at page 237 *ante*, to throw a hugh tube composed of sheet-iron across the Menai Straits for the transit of a railway train, has, we understand, been abandoned, owing doubtless to the probable disastrous effects of a gale of wind pressing upon such an extent of surface as so large a tube would necessarily present. It is in contemplation, we believe, to erect in its stead two bridges of solid construction, both of them uniting on the Britannia Rock, and to throw out piers from each side of the straits.

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* Published at Paris in 1754, and immediately afterwards in London, as translated by L. Dutens.

THE LATE CONFLAGRATIONS IN EUROPE AND AMERICA.

BY J. L——Y.

"Thoughts must be—thought."

However absorbed—nay dissolved men of the present age may be in matters of *immediate* and momentary import; still, the Royal Exchange, the Houses of Parliament and the Tower—Hamburg in fine, and Pittsburg, must startle the most placid and languid mind; events, to which the latest awful loss of life in Dover-street (and one year previous in Oxford-street), form not less pitiful appendages. If such (material) losses of property, were to be considered merely in their *material* bearings — which, however, is always wrong — we might say, *fifty millions* sterling have, in these instances, been burnt, and if, say, a gold mine, or gold mines might have been discovered contemporaneously with these events—well, then the losses would have been *repaid*, restituted. But such is *not* the case. Such conflagrations entail not merely material, but *moral* and *social* evils of the greatest import—and it is the duty of the "science of public architecture" (*Staat's - Architektur*), as well as other branches of public good, to consider these events attentively, and to devise, if possible, means against their recurrence. Amongst the moral and social evils, concomitant of such awful catastrophes, are to be reckoned—the loss of careful and loving parents and guardians, the interruption of education and domestic habits of a number of children—in fine, *all* the numberless evils following a more or less protracted existence of poverty, discomfort, disorder. Alluding hereby chiefly to the case of Hamburg and Pittsburg (at which latter place alone *forty millions* of dollars of property were consumed)—we may be told, that these cases are so *distant*, either in time or space, that they hardly deserve attention. How much, however, would that man have deserved, who would have written thus—at Pittsburg, *before* it was burnt! God forbid, that we should wish to portend any such catastrophe to any place in these realms, or elsewhere. "*As long, however, as the same causes exist, equal effects may be anticipated, or at least apprehended.*"

To speak boldly and unflinchingly—the main cause of all these (*material*) catastrophes, is the material tendency and belief of the age. We grasp at nothing but immediate, momentary enjoyment; and, therefore, it *is* so as we wish it to be—immediate *but* momentary; without any sure and safe basis, save its insecurity. As *archi*-tecture, however, is an important radius of this, or any other social and civilized condition—it is in its restoration, *regeneration*, that a more stable, sounder, securer state of society is also to be sought for. Let those who *study* (!) architecture, look at the work of Antonio Bosio — *Roma sotterranea*. Why, they will see that the *great sewer* called *Cloaca maxima* has been built by those sinewy ancient Romans with a greater degree of strength and solidity, than we moderns give (aye, and ever can give) to our royal palaces. Such really are (to approach near Pittsburg and Hamburg) the *Doganas* and *Alfandegas* of Genoa, Venice, Lisbon, &c. But we moderns take a *slate*, and calculate thereon our seven per cent., or nine and a half per cent., as the thing most essential. And then we call for some cobbler or botcher—because *the* architect builds for ages, and not days—and on he goes, to glue and patch together some structure of gingerbread and pasteboard, as it were. Such are these warehouses, which have been, of late, subject to *periodical* conflagrations at Liverpool, etc. In fact, after the lady of a member of the legislature has been burnt in one of the best hotels of the metropolis—we are sorry to confess, that hardly any one is secure from similar accidents; and we call again upon those who have seen Italy, nay even Germany, to say, whether such could happen in any of the *locandas* or hotels of Rome, Naples, or even Frankfort. After such conflagrations here, the houses present, almost generally, a gutted appearance, and even the staircase (made by *contract* of the most futile deal boards) has completely disappeared. Out of such structures, *some one* may get out his 7½ per cent.; but those be-widowed and be-orphaned persons who have remained behind, have no bank to draw upon for any reasonable sort of palliation or consolation.

It is, consequently, the sacred duty of any architectural journal, which understands its *high* vocation, to strongly (albeit charitably and conciliatorily) protest against such a state of affairs, and to devise means how we *moderns*, without losing any of the advantages of modern civilization, can revert (retrograde?) to that solidity, and beauty, and sterlingness, which bursts on our eyes whenever we behold the structures of antiquity, be they even of the most common or subordinate use.

THE PRACTICAL STUDY OF GOTHIC ARCHITECTURE.

The popular author of Coningsby, in a novel* lately published, has said, "The monks were great architects:—not the faintest idea is generally prevalent of the appearance of England before and since the dissolution;—in England and Wales alone there were of these institutions, of different sizes—I mean monasteries, and chantries, and chapels, and great hospitals — considerably upwards of three thousand, all of them fair buildings, many of them of exquisite beauty." Our own opinion is, that the number of churches and buildings, judging even by the remains alone, is here *considerably* underrated. Standing on an eminence in any part of England, or with the map of any county before us, we can mark out a very great number of churches, all of them containing matter to interest and instruct, whilst the larger portion exemplify the best characteristics of Gothic architecture. The almost exclusive attention which, from their elaborate decoration and extent, the cathedrals and larger churches have absorbed, has prevented our paying to the humbler structure of the village, that due consideration so essentially requisite to a correct estimate of the value of the style. We hesitate not to say, that our wonder is more excited, and our admiration of the zeal of the old architects more commanded by the village churches of England than by the cathedrals—until within the last few years the only objects of investigation. That cathedrals and colleges, monasteries and hospitals should rise in all the richness which wealth, and the resources of the art could command, was rather a thing to be expected, from the influence which each body of clergy possessed over a large circle of surrounding country. Thus no design was deemed too vast to be carried into execution: stone and timber acquired without expense, contributions from the dying, command of vast revenues, and the exertion at all times of every engine, which a powerful priesthood could so well call into play, added to the constructive skill of the freemasons, led to the completion of projects, the mere mention of which now would be heard with astonishment or ridicule. Confident that others would finish what had been so sumptuously commenced, the medieval architects on the continent conceived projects of such immensity, that the reformation and the change of taste occurred ere the work had arrived at a conclusion. But that every village should possess a church, in whose features we recognize the same ardour in matters relating to religious worship, with corresponding scientific skill and elegance of design, only modified, and that most admirably, by the smaller resources and wants of the community—that in every obscure hamlet was the same spirit which animated the builders of cathedrals such as York and Salisbury,—is matter for admiration and amazement!

In a former number of this journal,† we endeavoured to urge the importance of a more careful examination of ancient models than architects are generally in the habit of devoting. Such an extended examination as we advocate would occupy more than a few months, but would probably afford an exact comprehension of the principles which guided the master architects of the middle ages, finally resulting in the practice of a style, not at enmity with the true principles of pointed architecture, yet, at the same time, unmarked by that tame, fac-simile imitation, which is the staple of modern professors, which is acquiesced in by them, and is too much fostered at our universities. To copy a window from this cathedral, and a buttress from that church is not the straight road to architectural excellence, nor the best means of supporting the dignity of the professor, and advancing the progress of the art:—the proper value of ancient models is not shewn in imitating them after the Chinese manner, but is rather—in combinations and suggestions from many examples,—to produce works truly original, in conveying no suggestion of their origin, or of the course by which they were arrived at. And here we cannot quote from the "Discourses" of Sir Joshua Reynolds without expressing a wish, that architects would apply the principles, which he endeavoured to inculcate, and which are as much applicable to their art as to the kindred one of painting. After speaking of the advantages to be derived from works of art, he says, "From the remains of the works of the ancients the modern arts were revived, and it is by their means that they must be restored a second time. The fire of the artist's own genius, operating upon those materials which have been thus diligently collected, will enable him to make new combinations, perhaps superior to what had ever before been in the possession of the art; as, in the mixture of the variety of metals, which are said to have been melted and run together at the burning of Corinth, a new, and till then unknown metal was produced, equal in value to any of those that had contributed to its composition.†

The stay-at-home architects, who study from "the Glossary," and design with Britton's and Pugin's works upon the table, have entirely mistaken the character of Gothic architecture. They have fostered an opinion, not yet done away with, that the style is necessarily an expensive one, while they have begotten a manner, unlike any preceding, and inconsistent with all correct notions of propriety. The same pinnacles from Beverley minster or Salisbury cathedral—the same door from King's College chapel—all which they had never seen except in engravings—they have repeated again and again in church and meeting house, even in cases where funds would barely suffice for the most ordinary objects. Had these "gentlemen of England" studied the true character of pointed architecture, where it only can be learnt, from the building itself, they would have discovered that every variety of ecclesiastical structure had a peculiar purpose, and was erected in a peculiar manner. They could not have failed to learn, that it was proper to impress a character upon each in accordance with its purpose, its situation, the component materials, the general amount of decoration, and the total cost. The parapets and pinnacles, which may be excellent in the cathedral, might be quite out of place in the village church, and the very mouldings may be required of different design. In the latter structure, except in the case of a small oratory or chapel, we seldom find much ornamental carving, but the building always seems to have been designed for the locality, and not, like many of our modern Gothic churches, as though transported from some other place. It is a key to the history of the neighbourhood, and of the people who there dwelt; and whilst the oratory was enriched in a degree becoming the wealth and lineage of the lord of the manor, the nave was unadorned, and accordant with the condition of the tillers of the soil. To erect a town church in the country, and a village church in a crowded thoroughfare, is often destructive of the *genius loci*, and convictive of an entire ignorance of the unerring rules of art. Plan and elevation, perspective outline, and the proportion of parts, details of battlement, base-mould or string course, all should receive the greatest degree of attention from the architect. The education required involves a larger outlay of time than most architects are prepared to devote thereto; and thus, "content to dwell in decencies for ever," many exhaust their single idea in every church they have to execute, whatever be its situation and other circumstances of the case. A painter does

* Sybil, or the Two Nations.

† Vide page 217 *ante*, art. "Ancient Models."

† In another place we find the following:—"I cannot help imagining that I see a promising young painter equally vigilant, whether at home or abroad, in the streets or in the fields. Every object that presents itself is to him a lesson. He regards all nature with a view to his profession, and combines her beauties, or corrects her defects. He examines the countenance of men under the influence of passion, and often catches the most pleasing hints from subjects of turbulence or deformity. Even bad pictures themselves supply him with useful documents; and, as Lionardo da Vinci has observed, he improves upon the fanciful images that are sometimes seen in the fire, or are accidentally sketched upon a discoloured wall.

The artist who has his mind thus filled with ideas, and his hand made expert by practice, works with ease and readiness."—*Reynolds's Discourses on Painting.*

not learn the practice of his art from engravings, nor a sculptor from models in miniature, nay, in architecture, the actual examination, in Italy and Greece, of the beautiful structures in those countries, is deemed all but essential to the acquirement of a correct taste. But in the Gothic style, which has taken the place of every other for ecclesiastical purposes, we are content to learn at second-hand from mere graphic illustrations, or from a day's visit to a cathedral; though at our very doors are the best teachers—models with which the land abounds, and capable of adaptation to every object in ecclesiastical architecture. The importance of a complete examination of ancient models is more especially to be urged in Gothic architecture, in which the variations are so numerous, and comparatively so little understood, and in which the true value of precedent is so much a matter of speculation. Whilst our knowledge of actual examples is so meagre, we are restricted to the constant repetition of some few details, for which we know there is authority; but a familiarity with all existing details might produce a style in which originality would form one characteristic, or which would at least present a greater variety of forms than are at present met with.

Every lover of Gothic architecture should be a good pedestrian: thus his attention will not be confined to the towns which lie on the line of railway, but, knapsack on back and sketch book in hand, every mine will be open to his researches, and every store for him to glean therest. An enthusiast—and what student is not—will discover a new pleasure, such as Xerxes never dreamt of, in every object he approaches. We have, ourselves, had such experience of the advantages, in mental and bodily vigour, to be derived from pedestrian visits to some of the counties of England, that we are led to urge every student, who hopes to stand in advance of his time, to engage in the study of his art in the like manner; and, as the pleasure and advantage of a pedestrian trip is in some degree dependent upon previous arrangements, it may perhaps not be thought foreign to our object if we give a few hints on such points: we may perhaps occupy space that could have been otherwise filled, but an old traveller will know that our suggestions are not entirely valueless.

Some slight review of the history of Gothic architecture, and the practical method of determining dates, will be desirable, even in the student of some years' standing; and the publications of the Cambridge Camden Society have so much the merit of conveying a great deal in few words, that they should not be neglected:—one called "A Few Hints on the Practical Study of Ecclesiastical Architecture," will be a desirable companion for reference. It contains a list of the emblems of saints, and a similar list is to be found along with other information in the *Archæological Journal*. These lists may be referred to in many objects of interest in stained glass and monumental brasses. From the same sources may be learnt the method of "rubbing" brasses, which does not involve so much time as materially to retard the more immediate objects of the journey, and often affords hints in ornament frequently available. A solid sketch book of convenient size, with the *et cæteras* of the delineating art, is not likely to be forgotten. A walking-stick may contain the five-foot rod, which, if dimensions are taken, can hardly be dispensed with. Other essentials are, good maps, a compass, a note book, a tape, a pocket case of instruments, and tracing paper for copying stained glass. If, too, we descend into the matter-of-fact details of coat and inexpressibles, we may there, too, add to the comfort of our *voyageur*. The first-mentioned garment should be made of waterproofed cloth, with seven or eight pockets, the principal ones being large enough to contain the "one shirt off" and the sketch book in case of rain, double-breasted, to button to the throat if required. The "pantaloons" should also be of waterproofed material, and not exactly of the best kerseymere. These habiliments will defend from Jupiter Pluvius; but he is not an experienced traveller who would venture abroad without other protection; and this we carry in the shape of a great coat, strapped to the back, in the place of a knapsack. The straps do not pass knapsack-wise, but through strong loops sewn to the back of the smaller coat: and, with good walking-boots and a change of stockings, our pedestrian is equipped, and, when he has got a mile from London, does not fail to thank us for these hints. The load on his back is no great burthen, and the plan of carrying his *impedimenta* will be found preferable to the knapsack, which is often very harassing to the shoulders. He will also find many essentials necessary which we have not space to enumerate, but which will readily suggest themselves, as, an apparatus for sewing on buttons and mending stockings; and some little pupilage in these difficult arts, under some of his fair acquaintances, would be highly desirable. The question of cap *versus* hat is one which should also be present to his mind.

And now, our traveller, being fully equipped, dons his cap, and, stick in hand and sketch book under arm, with a light heart and little other luggage, leaves London behind him; quitting the study of stucco and chimney-pots, with the prospect of health invigorated and knowledge greatly enlarged. The *argumentum ad hominem*, which deters many from undertaking frequent visits to objects of interest in England, is that of expence. The coffers of architectural students are always shallow ones, and, under the idea that this is universally a land of expensive inns and dissatisfied waiters, the practical study of the art is postponed to some expected distant visit to the continent, where *sous* go as far as pence, and breakfasts are thought to be had for asking. But we know that, with a little tact, by avoiding large hotels, and spending the greater number of nights in village inns rather than those of the towns, the thing may be contrived at as low a rate as we can live for in London. At most villages an excellent bed may be got for a shilling, and sometimes — our readers may smile—for sixpence; and if our pedestrian requires his tea from Twining's, he had better stay at home, unless he can carry a full purse.

The "Church Schemes" of the Camden Society will be found very useful; the method of using them may be learned from the pamphlet before mentioned, and, if our traveller is a writer of short-hand, he may note down every particular of each church in as little time as it will take him to walk over it; and he will be led to the discovery of points which might otherwise have escaped him. How far photography, and other aids to art may be called into his service, we must postpone the consideration of to some future period.

We repeat—in conclusion—Gothic architecture is not to be learnt from books and illustrations, but from examples themselves; and from the rising generation of architects is expected a style of art consistent with the true principles of the architecture of the middle ages, and at the same time with the requirements and characteristics of the English people and the present age. E. H.

Museum of Economic Geology. — It having been found that the present premises of this institution are far too small for the rapidly increasing collection of specimens illustrative of the application of geology to the arts and manufactures, the Government have determined on appropriating a large space between Piccadilly and Jermyn-street, near St. James's Church, for a commodious building sufficient for the accommodation necessary for the Museum, the Mining-Record Office, and the purposes of the geological survey of Great Britain. The *Athenæum* states that the architect to the office of Woods and Works, Mr. Pennethore, has furnished plans, by which a frontage in both the above-named streets, of seventy feet, is ensured, and a depth of one hundred and fifty feet; which will be occupied by galleries for the exhibition of geological and mineralogical specimens, models of machinery, and illustrative productions of the arts and manufactures.

City Appointment of Assistant Surveyor.—The Commissioners of Sewers of the City of London having resolved to appoint an assistant surveyor, will meet, for that purpose, at the Guildhall, on Tuesday, the 17th instant. Gentlemen desirous of becoming candidates for the appointment must be possessed of adequate knowledge as surveyor and engineer, must give up the whole of their time to the duties of the office, and will not be allowed to carry on any private business.

VENTILATION.

We hear many complaints against Dr. Reid's system of ventilation as carried out in the temporary Houses of Parliament, but nothing better is promulged, nor do we hear of any endeavours being made to improve it. The proper ventilation of buildings does not receive that share of attention which its importance demands. Impure air still continues to kill its thousands quietly and in secret, and because it is in secret we look on passively and make no endeavour to stop the progress of the insidious destroyer. In well-built modern houses, where there are few crevices by which air can get access, systematic ventilation is absolutely necessary. Evidence of the strongest kind proves not merely the fatal effects of breathing air grossly vitiated, but that the absence of a full supply of pure air induces consumption, or renders the constitution less able to resist any disease by which it may be attacked.

The desideratum is, to introduce fresh air in sufficient quantities in such a manner as not to produce perceptible currents.

The Health of Towns' Commissioners say, in their second report:—

"Notwithstanding the apparent difficulties with which the ventilation of private dwellings is surrounded, a minute examination of the circumstances of the case has assured us that no field of improvement holds out a more promising result than that which may be anticipated in future from the more successful ventilation even of the humblest dwellings. The progress of science has explained its nature and importance. Sanatory measures for draining and cleansing will effect at least one-half the remedy by removing those impurities that have hitherto so largely polluted the atmosphere in towns, more especially in the habitations of the poor. Less air is requisite for ventilation in proportion to its purity, and consequently, the risk of offence from currents must be diminished where adequate ventilation is provided.

These considerations give us great confidence, in the expectation that ventilation will be much improved in proportion as its nature and importance is better known; more especially when plans for warming and ventilation shall be minutely studied, and incorporated in original designs, instead of being merely applied, as is too often the case at present, to buildings already constructed or designed without reference to this important object. This is the great and paramount object that should be pressed upon the attention of architects and builders. If structural arrangements are provided in public buildings and private dwellings, ventilation will then attain that facility and economy of execution, without which its general introduction cannot be anticipated to the extent that its importance requires. But exclusively of such systematic improvements as may justly be anticipated in new buildings, where this subject is fully considered, we have reason to look forward to additional improvement in this department. The very simple fact, that vitiated air always rises, under ordinary circumstances, shews that if two apertures be provided in every apartment, one below, and another above, and valves be arranged so that they may be adjusted with facility and accuracy to the circumstances of the moment, the natural laws that regulate the movement of vitiated air will induce a perpetual change, and prevent that extreme contamination which is so often observed. Extended systematic ventilation, with all its peculiarities and powers of adaptation, can only be obtained and is only required in public buildings or other large establishments; but it cannot be too strongly pointed out that many just objections to ventilation, as it is at present effected, arise from the fact that the feet principally are subjected to a cold current, in ordinary apartments, while the head may be in a hot stagnant atmosphere loaded with vitiated air, and saturated with moisture, produced by the breath, by combustion from lamps and candles, and from other sources. A superior aperture, and the most moderate attention to the point selected for its introduction, will secure the admission of fresh air without the current being perceptible to the human frame, and prevent it from attaining that condition where, by long continuance in a heated atmosphere, slight movements of air become offensive."

We have nearly as much confidence as the commissioners "in the expectation that ventilation will be much improved" as its importance becomes better known; but we greatly fear that a long time will elapse before the public are fully roused to its importance. This can only be effected by constantly bringing the matter before them, and pointing out the results of inattention to it. We extract the following useful information on the subject from Bernan's valuable "History and Art of Warming and Ventilating Buildings,"* to which we have referred in previous numbers of our journal:—

"Not the least remarkable example of the power of habit, is its reconciling us to practices which, but for its influence, would be considered noxious and disgusting. We instinctively shun approach to the dirty, the squalid, and the diseased, nor use a garment that may have been worn by another; we open sewers for matters that offend the sight and smell, and contaminate the air; we carefully remove impurities from what we eat and drink, filter turbid water, and fastidiously avoid drinking from a cup that may have been pressed to the lips of a friend. On the other hand, we resort to places of assembly, and draw into our mouths air loaded with effluvia from the lungs and skin, and clothing of every individual in the promiscuous crowd: exhalations are offensive to a certain extent from the most healthy individuals, but when rising from a living mass of skin and lung in all stages of evaporation, disease, and putridity, and prevented by the walls and ceiling from escaping, they are, when thus concentrated, in the highest degree deleterious and loathsome.

This poisonous exhalation is one of the effects of the consumption of fourteen ounces of charcoal that Dr. Liebig says is burned daily within the body. The share of impurity contributed by each living furnace has been variously estimated. From experiments with men of different stature, Dr. Menzies found that from fourteen to eighteen respirations were made in a minute; and others have found them vary from thirteen to twenty-two; the average generally assumed is twenty respirations in a minute. The quantity of air drawn into the lungs at each inspiration varied from 40·7 to 46·7 cubic inches; and under all the circumstances, Menzies considered 720 cubic inches about the average quantity of air inhaled by a healthy man in a minute. A woman may inspire, on an average, about 500 cubic inches; a mean inspiration from a healthy pair of the species will not, probably, exceed 612 cubic inches in a minute.

The quantity, however, varies not only in the sexes, but in the same individuals placed in different circumstances with regard to rest and motion, to health and illness. During great exertion it will exceed the average; during rest, and in delicate and ailing persons it will fall under it; so that if 600 cubic inches be reckoned as expired in a minute by each individual in a mixed company, it will be a fair average allowance.

The fresh air, before it is taken into the lungs, is composed of 23·2 per cent. of oxygen, 75·5 of nitrogen, and about 1½ per cent. of carbonic acid, and a variable quantity of vapour of water. After it is has been expired from the lungs, in which it remains from ten to twelve seconds, it contains a larger quantity of vapour, the same quantity of nitrogen, from 11 to 12 per cent. only of oxygen, and between 8 and 9 per cent. of carbonic acid; so that nearly a half of the oxygen or vital element of the air has been changed into carbonic acid. If atmospheric air contains 3·5 per cent. only of this gas, it is unfit to support animal life. Air, therefore, which has been expired from the lungs contains 2·4 times this quantity: so that a person who inhales 600 cubic inches a minute, renders 1,440 cubic inches unfit to be breathed again.

The amount of exhalation from the skin also varies in different individuals, and from the same person at different times—a hand emitted ¼ grain in a minute, at another trial ½ grain, and in a third experiment it exhaled ¾ of a grain of vapour in a minute; which is 12, 30, or 45 grains a minute for the whole body. If one of each sex be taken, the mean will be about 23 grains each in a minute. The skin surface of a man being about fifteen square feet, 1·5 grains of vapour will be exhaled in a minute from each superficial foot of his body, or 3 grains from each cubic foot of his mass. Besides water, carbonic acid, acetic acid, phosphoric acid, muriate of soda, and a peculiar odorous matter are contained in the vapour emitted from the surface.

This copious cuticular discharge is seldom perceptible to the eye, although it is to the the nose. Boerhaave made it apparent in the warm weather by immersing his hand in air cooled by ice, which then seemed to smoke like a boiling kettle; and he amused himself with the notion, that if winter's cold was produced in the midst of a crowded summer assembly, each individual seething in his own steam would appear like a heathen deity wrapped in his peculiar and appropriate cloud.

The emanation from lungs and skin is carried from the body by diluting it with atmospheric air, which at a certain temperature can hold in suspension a certain quantity of vapour, the amount of which is shewn in the following table; the first column gives the temperature of the air, and the second column the number of grains of water a cubic foot of it will contain, in the form of vapour, at that temperature:—

Temperature.	Grs. of water in a cubic foot of air.	Temperature.	Grs. of water in a cubic foot of air.
°		°	
32	2·53	40	3·23
33	2·63	41	3·37
34	2·71	42	3·50
35	2·80	43	3·63
36	2·89	44	3·76
37	2·97	45	3·89
38	3·06	46	4·02
39	3·15	47	4·15
48	4·27	70	8·39
49	4·40	71	8·65
50	4·53	72	8·92
51	4·68	73	9·19
52	4·83	74	9·48
53	5·03	75	9·78
54	5·17	76	10·10
55	5·34	77	10·38
56	5·51	78	10·69
57	5·67	79	11·01
58	5·86	80	11·33
59	6·04	81	11·66
60	6·22	82	12·05
61	6·39	83	12·35
62	6·57	84	12·71
63	6·79	85	13·08
64	7·01	86	13·45
65	7·23	87	13·87
66	7·44	88	14·23
67	7·66	89	14·61
68	7·89	90	15·00
69	8·13		

According to the table, a cubic foot of air at the freezing point can retain 2·53 grains of water only; if, therefore, it contain one grain only, then each cubic foot will absorb or carry off 1·53 grains of vapour from a moist surface, which may be the insensible perspiration from the surface of the body. If this air be heated to 60°, a cubic foot of it will carry off 5·22 grains of moisture from the skin; for it is seen from the table, that air at 60° can suspend 6·22 grains of water. To carry off 23 grains of insensible perspiration per minute, will therefore require about 15 cubic feet of the colder air, and about 4·4 cubic feet of the warmer air. If less than this be supplied, the moisture will accumulate on the skin, and the air of the room become saturated with vapour.

If the average temperature of the room be taken at 64°, with the dew point about 50°, or with 4·53 grains of water in each cubic foot, then about 9·25 cubic feet of air will be required per minute for the insensible perspiration, and, in addition, one cubic foot nearly for the excess of moisture from the lungs not carried off by 1,440 cubic inches allowed for the dilution of the carbonic acid gas; so that about 10·25 cubic feet of pure air a minute must be allowed to ventilate each person.

But if a greater proportion of moisture is added artificially to the air, this quantity must be increased. In every case, ventilation should be regulated with reference to the hygrometric condition of the warmed air.

Dr. Reid states, that he never gave less than 30 cubic feet of air a minute to each member of the House of Commons when the room was crowded, and on one occasion he introduced for weeks successively 60 cubic feet a minute to each member, and that, to give the necessary moisture, 5,000 square feet of moist evaporating surface was exposed to the air; and subsequently, as stated in a previous essay, the air was made to flow through jets of water; and this saturation probably it was that rendered this quantity of ventilation necessary and pleasant.

In whatever way the air of a room is heated, it is cooled by coming in contact with the glass of the windows, by the walls, ceiling, and floor absorbing the heat, and by cold air entering at doors and windows, and the crevices round them, and sometimes by the chimney when it is left open.

Each square foot of glass in a window will cool about one cubic foot of air as many degrees per minute as the temperature of the room exceeds the temperature of the external air. If a window has five square feet of glass, and the temperature out of doors be 32° and the room 60°, then five cubic feet of air will be cooled 28° in a minute. Of the quantity of cold air admitted at the crevices round the window-sashes and round the door, no definite estimate can be given; it depends on the position of the window above the floor, on its fitting, on the difference of temperature between the room and the air outside, on the force of the wind, and other causes. If three times the width of the sash added to twice its height be multiplied by ·3, it will give about the number of cubic feet of air cooled from this cause. The crevices round the sashes of a window four feet wide and eight feet high, will cool about 8·5 cubic feet in a minute.

Twice the width added to the height of a door multiplied by ·26, will give the cubic feet of air cooled per minute for that opening when well made: a door three feet wide and seven feet high will cool about 5·2 feet in a minute.

The absorption and radiation of heat from every 200 square feet of wall, ceiling, and floor, may be taken on an average as equal to cooling one cubic foot of air per minute as many degrees as the internal is warmer than the external air.

When wax or tallow lights are burned, about ·25 cubic feet a minute must be allowed for each.

With the air at 64° and dew point at 50°, every inhabited apartment must therefore have the following allowance of heated air per minute:—

	Cubic Feet.
For the supply to the lungs.....	·83
To carry off insensible perspiration	10·2
For each common sized candle....	·25
Square foot of glass in window ..	1·0
Each window, for chink winds....	8·5
Each door about ditto	5·2
Each 200 square feet of wall, ceiling, floor, exclusive of windows	1·

Suppose a room 30 feet long, 20 feet wide, and 16 feet high, with three windows 8 feet by 4 feet, and two doors 3 feet by 7 feet, and containing twenty persons:—

	Cubic Feet.
20 persons will require for lungs and skin	16
3 windows, 96 square feet of glass	96
—— for crevice winds.....	25·5
2 doors for ditto	10·4
2,800 square feet, wall, ceiling, floor	14
	161·9,

or heat equivalent to raising 161·9 cubic feet of air per minute. To this must be added one quarter cubic foot per minute for each light: should the air contain more than 4·53 grains of vapour, the quantity for ventilation must be increased. If, for example, the air at 64° held six grains of water in suspension, then 23·2 cubic feet must be allowed to carry off the personal exhalations, instead of 16 feet."

* George Bell, Fleet-street, 1845.

DECORATIVE ART SOCIETY.

On Wednesday (28th of May), a general consideration of geometrical figures, as the foundation of graceful outline, was commenced; and, although this may not be strictly true as a theorem, it afforded an opportunity for the recognition and development of some of the leading principles by which the best works of ornament are regulated. The varying elements of form peculiar to different epochs were noticed and explained. It was considered that the importance of the subject rendered it deserving of continued attention; and it was, therefore, determined that it should be brought before the society monthly, until further notice.

On Wednesday (June 11th), a paper will be read "On Stained Glass." And at a meeting to be held on the 25th, the consideration of geometrical figures will be resumed, by discussing the properties of the oval.

THE PROPOSED CARLTON CLUB-HOUSE COMPETITION.

Sir,—The recent proceedings of the Carlton Club appear to call for some comment on the part of the profession, and I have drawn up a statement from documents in as calm a manner as possible, feeling that a bare announcement of facts is often more eloquent than a long treatise. I think the insertion of it in The Builder may do good, and call attention to the necessity of some protective measures being taken by architects, if they do not wish to be kicked about like footballs at the caprice of every committee, whether composed of tradespeople or of the high and mighty of the land, in whom, alike, when a favourite is to be served, all proper feeling seems to be lost; and therefore architects should set their faces against the present mode of proceeding adopted by committees, whereby competitions are mere farces—flimsy blinds to screen some intended favouritism.

I have stated nothing which cannot be substantiated; and my own observations are, I hope, only such as one jealous of the reputation of his profession would be expected to make.

It has been just decided, by a ballot of the whole club, that Messrs. Basevi and Sydney Smirke are to be the architects to carry out the proposed alterations. A slight sketch of the proceedings of the club in the years 1844 and 1845, relative to the competition, may not be uninteresting to the profession, and would appear to call for some decided steps to be taken, with a view to a thorough understanding in future of the real position which architects should occupy when required to enter into competition.

In consequence of the Carlton Club having resolved to purchase the two adjoining houses in Pall-Mall, with a view to enlarge the building, it was decided that a limited number (14) of eminent architects should be invited to send in plans for the elevation and internal arrangements of the necessary alterations and additions; the plan which should be most approved to receive a premium of 200*l.* "*in case it should not be adopted by the club*;" and that which should be considered the second best a premium of 100*l.* "*in case the first should be adopted.*"

Eight only of the architects who were invited to compete sent in plans, varying in estimated expense from 22,000*l.* to 40,000*l.* The first premium was adjudged, by ballot, to Mr. Salvin, for a plan in the Elizabethan style, of which the estimated cost was 31,800*l.*; and the second premium was adjudged, in the same way, to Mr. Hopper, who, for his elevation, had copied that of Inigo Jones's Banqueting House at Whitehall, and whose estimate was 22,000*l.*

In their report upon the various plans that had been sent in, the special committee (consisting of the Marquis of Salisbury, Mr. Henry Hope, and Mr. Gally Knight) had observed, with regard to Mr. Salvin's, that "while of its beauty there could be but one opinion, they doubted whether such a design was well adapted for a London atmosphere, or for the position it was to occupy;" and further, that "they considered it inadmissible, from the circumstance that the entrance at the north-west corner was reasonably objected to by the next-door neighbour."

Respecting Mr. Hopper's plan, they had reported that "the north front had considerable merit; that it offered a succession of good morning and writing rooms to the north, east, and south; with a large coffee-room extending from Pall-Mall to Carlton-gardens, and having a cupola and central skylight which would render the room very light, capable of a variety of useful arrangements, and give it a handsome appearance," &c.

The instructions were issued to architects on the 19th of March, 1844, and the plans were sent in by the 1st of May; and certainly up to that time no such intimation had been given as that which follows, which appears on the 18th of June, when it was for the first time declared to the architects to whom had been awarded the two premiums, "that the club was not to be considered bound to adopt either of the successful plans, and that the drawings, &c., to which the premiums might be awarded should become unconditionally the property of the club." And in the report, dated 10th May, 1845, it is stated that "the committee desire to observe that the club, having acquired the property of these two plans, are entitled, if they should think fit, to make any use of them, without employing either Mr. Salvin or Mr. Hopper as their architect, *which is perfectly understood by these gentlemen.*" The words in italics constitute an extraordinary assertion, and one not borne out in the instructions or correspondence up to the time that the plans were sent in; and surely the interpretation, according to the rules of common sense and common justice, of the conditions annexed to the two premiums could only admit of one meaning, viz., that Mr. Salvin was to receive 200*l.* for his plan (the first), if not adopted; but that if the first was adopted, Mr. Hopper was to receive 100*l.* for his plan (the second); but here, whatever they may have intended further to stipulate, the committee stop short; but the argument goes on, and therefore it is impossible, if words are to have any meaning at all, to escape from the conclusion that, as Mr. Salvin's plan was not adopted, Mr. Hopper ought (instead of being paid the 100*l.*) to have been employed. Instead of so doing the club have now decided the choice of the architect by a ballot, each member being at liberty to place in the balloting-box the name of the architect he would prefer.

The following is the result of the ballot:—Messrs. Roberts, Nelson, Beazeley, and Blore had one vote each; Mr. P. Hardwick, two votes; Mr. Railton, four votes; Mr. Burns, five votes; Mr. Cockerell, six votes; Mr. Taylor, nine votes; Mr. Hopper, fifty-seven votes; Mr. Salvin, eighty-nine votes; Mr. Barry, 210 votes; Messrs. Basevi and Sydney Smirke, 220 votes;—about half only of the members of the club voting on the occasion. It must be observed that Mr. Barry had declined to enter in the competition for plans in 1844, and that Messrs. Basevi and S. Smirke were among the unsuccessful candidates on that occasion.

The point to which the attention of the profession should be called is, to ascertain whether certain rules of conduct should be laid down by which competitions (if such things must be) should be guided,—a code of honour formed which should be binding on professional men as gentlemen, so that fair and honourable contests should take the place of gladiatorial combats; that those who have toiled to win the prize should not have the wreath snatched from them in the moment of victory, and find, after all their exertions, nothing left for their consolation but the poet's line,—

"The reward is in the race we run, not in the prize."

The history of the Carlton Club competition is only one more addition to the list of cases of the kind which have already been noticed in The Builder, in which interest is made to ride in the ascendant, since it is notorious that a most active canvass was set on foot for the architect of the Reform Club and those of the Conservative Club, between whom in fact it was understood the race was to be run, and which will account for some of our most eminent men having so few votes.

Something must be done to put the competition for a high and honourable prize upon a different footing to a contest for the post of beadle or sexton, with the adherents of the parties calling out, "Vote for Wiggs," "Vote for Snooks." If, however, architects are content to be placed on this footing they must not feel surprised at any conduct which may be pursued, and they must be prepared to expect that committees will advertise for plans, and will receive the collected talent of competitors, not one of whom is to have a chance of ultimate success against some favoured party. The remedy is in the power of the profession, if proper steps are taken to secure that treatment which is due to it from the high ground which it ought to hold in public estimation.

Spero Meliora.

Jeffrey's Marine Glue.—A report of a French commission, charged to make experiments on the marine-glue, at the port of Toulon, has just been published, and asserts the superiority of this material for caulking vessels, its power of preserving wood from the punctures of marine insects, and their opinions that trials on a large scale ought to be made forthwith.

PRICE OF BUILDING MATERIALS IN BRECON.

Sir,—I beg leave to forward you the prices of building materials, &c., in this neighbourhood:—

	£.	s.	d.	
Timber:—				
Memel	0	2	6	per cube foot.
Yellow Pine	0	1	10	ditto
Red, ditto	0	2	3	ditto
African Oak	0	3	0	ditto
English, ditto, 3s. to	0	3	6	large scant.
Ditto, 2s. to	0	3	0	small ditto.
Larch Poles	0	1	0	per cube foot.
Laths, 3s. to	0	3	6	per hundred.
Slates:—				
Queen's (30 by 16)	4	0	0	per ton of 400.
Princess (24 by 14)	10	10	0	per thousand.
Duchess (24 by 12)	9	5	0	ditto
Marchioness (22 by 11)	6	10	0	ditto
Countess (20 by 10)	6	0	0	ditto
Bricks:—				
Bridgewater	3	0	0	ditto
Pending (Brecon)	2	0	0	ditto
Fire	6	0	0	ditto
Building Stone, 5s. to	0	6	0	per load, about 3 tons.
Ashlar—Llanguni-der stone	0	0	9	per foot cube.
(Good stone for building purposes.)				
The same in steps, cills, plinths, &c.	1	s.		
Crickhowell	0	1	2	per foot cube.
Bath stone	0	2	6	ditto
(The new county hall is cased with it.)				
Stone tiles	0	4	0	per hundred.
Lime	0	1	5	per barrel of two bushels; weight 2½ cwt.
Cement	0	17	0	per cask; wt. from 3¼ to 3½ cwt. (from Pontypool).
Marble:—				
Welsh Porphyry	0	7	0	per cube foot.
Black 12s. to	0	14	0	ditto
Italian	1	5	0	ditto
Ironwork:—				
Castings, small	0	0	1½	per lb.
Ditto, large 10s. to	0	12	0	per cwt. fitted up.
Wrought	0	0	3	per lb.
Glass:—				
Common	0	1	0	per square foot.
Crown	0	1	4	ditto
Plate	0	3	6	ditto
Lead:—				
Sheet Lead, 1*l.* 4s. to	1	7	6	per cwt.
Cast Lead	1	6	0	ditto
Copper				
Zinc, 10d. per lb., or	0	0	6	per foot.
Paint	0	0	7	per lb. on the average.

Artisans, 3s. to 3s. 6d. per day of 10 working hours.
Labourers, 1s. 10d. to 2s. 10 ditto
Horse and cart, 4s. to 5s. 8 ditto

Masonry.—Walling is executed with mortar at 1s. 3d. to 1s. 8d. per perch (a perch is 7 yds. by 2 ft. thick and 1 ft. high). Dry-walling, 9d. to 10d. per perch. If scaffolding is required, from 2s. to 2s. 6d. per perch.

The above are the prices usually paid in this town. I am, Sir, &c.
Brecon, May 23, 1845. B. Baylis.

*** We are much obliged to Mr. Baylis, and hope we may be furnished with similar information from other parts of the country.

Gunpowder as an Agent.—The Whiting Shoal, in Limehouse Reach, which extends nearly half a mile in the centre of the river, and has long impeded the navigation, was lessened last week by means of gunpowder. A hole was bored some distance in the shoal, in which was deposited a tin case containing 45 lbs. of gunpowder, and it was fired by a galvanic battery from one of the Government lighters, under the command of the harbour-master. The effect is described as being very singular. A large body of water was thrown up in a dome-like form, and the shock was plainly felt on both sides of the river. After the operation it was found that some forty feet of the shoal was displaced. The usual dredging machines had previously failed. In the same week the Ewart Rock, so long a dangerous impediment to vessels navigating the Solway Frith, was blown to pieces with gunpowder by direction of the trustees of Maryport Harbour. The accomplishment of this object forms one of the many suggestions by Captain Denham, for facilitating the approach to and otherwise improving the harbour of Maryport, and which are being carried out under the superintendence of Mr. Abraham Middleton, civil-engineer.

MAUSOLEUM OF THE ORLEANS FAMILY.

MAUSOLEUM OF THE ORLEANS FAMILY.

The accompanying engraving represents the sepulchral monument, now nearly completed, at Dreux, in Normandy, for the Orleans family. It was constructed from the designs of Messrs. Fontaine and Lefranc, architects, and presents a curious, though not ineffective mixture of styles. We should be glad to obtain some accurate particulars of its construction and dimensions, and to learn the character of the details.

Our engraving was made from a Daguerrotype plate, obligingly placed at our disposal by Professor Donaldson, at the moment he received it from France.

The presence amongst us of a member of the illustrious family for whom the monument was erected (the Duke de Nemours), gives the engraving additional interest at this moment.

THE GOVERNMENT SCHOOL OF DESIGN.

Some short time ago we referred to the course of study pursued in this institution, and alluded to the opinion which exists that greater opportunity for the study of the figure should be given than is now permitted, and urged that to deny to artisans the full means of study for fear of their becoming artists was unwise and nonsensical.

Relative to this point there is, unfortunately, considerable dissension in the school; Mr. Wilson, the director of the institution, being arrayed against Mr. Herbert, the master; the figure school has been shut up and some of the students suspended. It is quite time that the question was settled one way or the other.

The following report of the progress and state of the school has been recently submitted to parliament:—

"The School of Design at Somerset-house was established at the commencement of the year 1837, by and under the superintendence of the Board of Trade, for the improvement of ornamental art, with regard especially to the staple manufactures of this country. The number of applicants for admission every month exceeds, by about fifty, that which the limited space in Somerset-house will accommodate. In connection with the head school at Somerset-house, schools have been formed in many of the principal manufacturing districts, namely, in Spitalfields, Coventry, Birmingham, Manchester, Sheffield, Nottingham, York, Newcastle, and Glasgow; and applications are at present under consideration for the establishment of others in the boroughs of Southwark and Lambeth, in Norwich, in the Staffordshire Potteries, and in Dublin. The students commence with exercises in elementary outline, pencil drawing from lithographic prints of geometrical and ornamental forms, and proceed to shading with chalks, first, from shaded prints, then from casts of ornament. The human figure, in connection with ornament, is studied anatomically, by successive exercises in drawings from prints, models, and casts, of the most appropriate antique statues and reliefs; and the principles of drapery are taught by means of a draped lay figure. A numerous class of the students are occupied in painting from various examples of art, from casts, and from natural objects, which form materials of ornament in water colours, in tempera, and in oil; and modelling in clay and wax forms an important part of the business of the school. As a general principle, each student is taught, as far as possible, with reference to the promotion of the particular object for which he joined the school; and the practical application of the instruction which is given is shewn by refeence to numerous and valuable examples of ornamental and decorative art exhibited on the walls of the rooms. The more advanced students are exercised in original designs and composition; that is, in forming new combinations of the materials of ornament, and are taught to apply to various practical purposes the knowledge and skill they acquire. It is the duty of the director and masters to see that only the best examples are used, and to enable the students to form correct ideas of the principles, different styles, and importance of ornamental art, and of its practical application to particular departments of manufacture and decoration. Besides the use of an extensive collection of casts to illustrate the history of art, and examples of every variety of ornamental manufacture and decorative work, the students have the advantage of reference to numerous costly books of plates, and the privilege of borrowing books from a lending library, containing such works as are especially fitted to promote artistical improvement and refinement of taste. The head school at Somerset-house includes, in a separate part of the building, a morning school for females, in which upwards of fifty young women receive instruction in the practice of drawing and designing for lace patterns, embroidery, porcelain, wood engraving, flower painting, and various kinds of ornamental work, in the execution of which females may be advantageously employed. The school for females is open daily from eleven to two, excepting

Saturday; and the applicants for admission constantly exceed, by twenty or thirty, the number to which the means of accommodation is limited. The school for males is open to the inspection of the public every Monday, between the hours of one and three. For the present year the sums offered for prizes exceed 180*l*. Male school, Somerset-house: morning, 4*s*.; evening school, 2*s*.; female school, 2*s*. The following abstract exhibits the numbers of students in attendance during the month of February last:—

Head school....	Somerset-house ..	396
Branch schools..	Spitalfields	190
,,	Coventry	106
,,	Birmingham	257
,,	Manchester	150
,,	Sheffield	47
,,	Nottingham.....	36
,,	York	76
,,	Newcastle	140
,,	Glasgow	360."

Unfortunately this report does not touch the real question at issue—the efficiency, or otherwise, of the present system. Some further information must be elicited on this head, and if it be found that the system has failed to produce a good result an alteration should of course be made.

FONT IN ST. MICHAEL'S CHURCH, SOUTHAMPTON.

The font in St. Michael's Church, Southampton, represented by the accompanying engravings, strongly resembles that ancient and curious specimen of workmanship in Winchester Cathedral, known as the *crux antiquariorum*, or "the puzzle of the antiquaries." It is of black marble, and alluded to by Sir H. C. Englefield in his "Walk through Southampton," who offers the following comment upon it: "It is curious to observe the effect of time on the black marble of which this font is composed; a vein less hard than the rest runs through one front, and it is quite honey-combed by age, although it probably has always stood under cover."

The font is a square block, having in the centre an hemispherical bason, around the edge of which is a groove (probably sunk to receive a cover or lid); the top is ornamented by a running foliage, rudely carved, the angles being further adorned in the manner shewn by the drawing.

Every side is divided into three sunk circular compartments, charged with figures in low relief, mostly bearing a resemblance to the one in the centre compartment of the side represented; the figure to the left of the drawing appears to be a dove; that in the centre is supposed to portray a dragon; and in the third compartment the form of an angel is represented, clothed in a long robe, having around the head the *nimbus*, or glory, and with wings extended, that nearly fill the remaining portion of the circle, reaching from the shoulders to the feet, which are naked.

These figures, it is inferred, are emblematical of the saint or archangel, Michael, who is spoken of by St. John as fighting against the dragon and his host, and who is represented as the guardian of the Jewish and Christian churches, and by some imagined to be the Son of God himself.

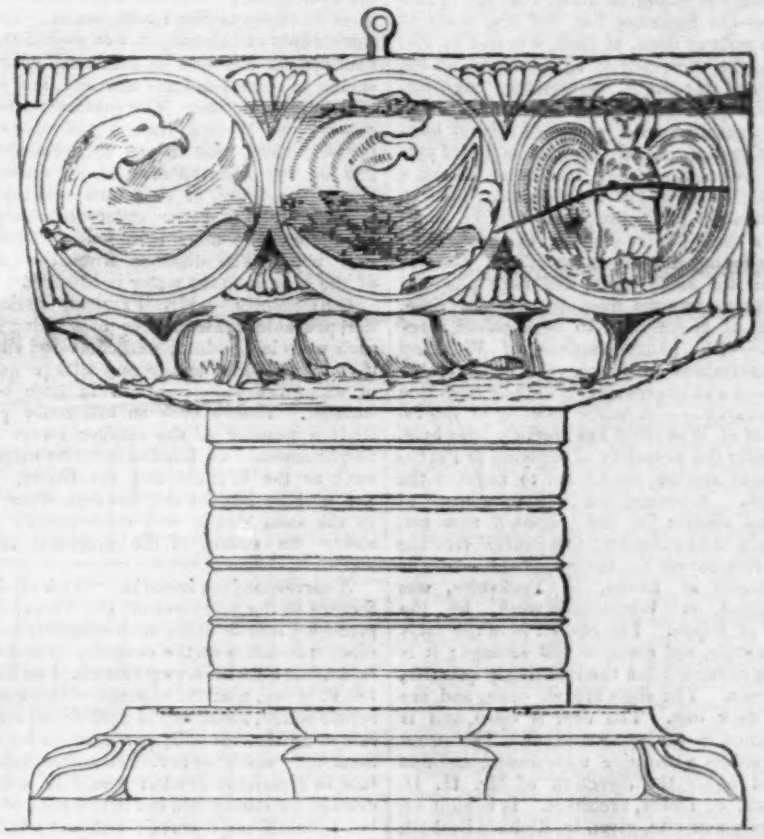
The font was originally supported by five columns, the four at the corners being less in diameter than the centre one, which now only remains. Three broad leaves, one at the angle and one on either side, formed the capital of each of the smaller columns; that part of the base on which the smaller columns stood is sunk to receive them. Two iron eyes are fixed into the top of the font, for the purpose of fastening the cover or lid.

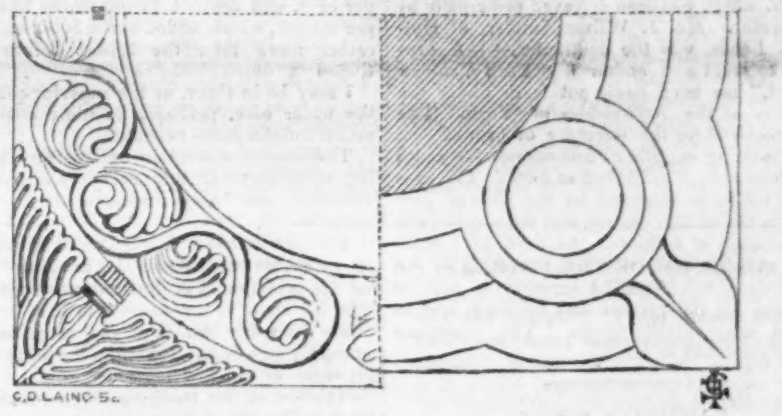
Although great doubts are entertained respecting the age of the font in Winchester Cathedral, Mr. Britton ascribes it to the time of Walkelyn, bishop of Winchester, who died 1097; and, from the similarity between that and the font now described, they may be considered to be coeval.

Southampton. JOHN ELKINGTON GILL.

*** The font in East Meon Church, Hampshire, is another example of the same class of fonts; it resembles that at Winchester so closely, that it is supposed to have been made by the same hand.

FONT IN ST. MICHAEL'S CHURCH, SOUTHAMPTON.





Plan of Top of Font. *Plan of the Base.*

12 9 6 3 0 1 2 Feet.

ARCHITECTURAL MEMS. FROM THE COUNTRY.

The Cotton-Mill Company at Kingston, Hull, have advertised for a site, preparatory to the erection of their proposed extensive factories, &c. The company starts with a capital of 200,000*l*.——A few days since the electric fluid struck the new church at Walton, about three miles from Stafford. The steeple was much injured, a part of the church was unroofed, and two bricks were carried by the lightning through a cottage window, a short distance from the church.——Part of Dublin-street, Edinburgh, under which they are at present excavating the tunnel from Scotland-street to Princes-street, fell in on Thursday morning from the want of sufficient under-props to support the superincumbent earth.——A committee has been appointed at St. John's, Isle of Man, to carry into effect the building of a new church in that district, and the restoration of the ancient chapel. A plan has not yet been adopted; various architects have been invited to supply designs, the committee being desirous of erecting a good architectural edifice.——On Monday week (St. Augustine's day) the consecration of Hedon church, in the diocese of Ripon, took place. The restorations in the chancel consist of new and elaborate oaken stalls; a floor of encaustic tiles, of beautiful pattern; an early English reredos, with illuminated tablets; and a figure of the Saviour, in stained glass.——The new line of railway communication between the Ogwen river and the Menai bridge is in active progress. Workshops are being erected, and operatives are pouring in preparatory to carrying out the contract taken by Messrs. Jackson, at 246,000*l*.——An attempt is being made to raise sufficient funds for the purpose of erecting a new church in Sculcoates, Hull, to be dedicated to St. Paul. A sermon was preached last Sunday by the Bishop of Ripon, in aid of the fund, when 60*l*. was collected. A further sum of 1,500*l*. is required.——A new reredos to the altar of St. George's Church, Stamford, is about to be erected. The design is by Mr. Edward Browing, and the stone will be taken from the new quarry

of Mr. C. Bland, of Little Casterton.——The Manchester committee has purchased from Lady Hoghton thirty-one acres of land, in the township of Bradford, for a third public park. The price was 6,200*l.* or about 10*d.* per square yard.——On Saturday last the first stone of the new railway dock, at Hull, was laid by Mr. Huffan, the secretary of the company, in the presence of Mr. Lane, the resident engineer, Mr. Murray, of the firm of Bowers and Murray, the contractors for the work, and several hundreds of spectators. Mr. Huffam, in lieu of putting some money under the stone, placed a check for the benefit of the workmen upon it. It is thought that the dock will be completed in about twelve months. We understand that the laying the first stone of the Victoria dock, in the same town, will take place in about three months from the present time, and that it is intended to be a public ceremony.——The churchwardens of Worksop have determined to make very considerable alterations and improvements in their venerable parish church.——A public meeting of the inhabitants of Wakefield has recently been held, to consider the propriety of applying to Parliament next session, for an act to improve the Borough. A committee was appointed to draw up clauses for the proposed new act, which are to be submitted to a general meeting of the rate-payers for their approval.——The new church at Leven, in Yorkshire, was consecrated, on Wednesday-week, by the Bishop of Ripon. The church is in the early English style, and contains 450 sittings; it is of stone brought from the Headingly quarries, near Leeds. The seats are all open, and are stained dark oak. The roof is open, and is also stained in the same manner. The structure presents a massive appearance, and was executed under the direction of Mr. H. D. Chantrell, of Leeds, architect. It is built on an entirely new site, given by Richard Bethell, Esq., lord of the manor, and is in the centre of the village, a full mile from the site of the old church. The cost of its erection is about 2,400*l.* which has been defrayed principally by the rector. Mr. J. Wilson, builder, of Holbeck, Leeds, was the contractor.——A proposal to erect and endow a "York Yeoman School," has been lately put forth under the sanction of the Archbishop of York. The sum required for the purchase of ground, and for a building capable of accommodating about fifty boarders, is estimated at 3,000*l.* The proposed school is intended for the sons of persons in the middle classes, and more especially for the sons of farmers. As soon as a sufficient sum has been collected, a meeting of the subscribers will be called together to appoint trustees for the ground and building, and to adjust other preliminaries. The donations already amount to 1,700*l.*

ARTESIAN WELLS.

On Friday, the 30th ult., Professor Farraday lectured at the Royal Institution on this subject, stating that the term artesian was applied to overflowing wells, in consequence of the first well of this character being sunk at Artois, in France, but that now the term was applied to very deep wells whether they overflowed or not.

Object.—His object was to shew the practicability of supplying London with water in greater abundance, of a better quality, and at a less cost than it is at present supplied with. This being the case, his remarks had reference to the geological peculiarities of the London basin.

Safety.—He stated that, provided such wells be properly sunk, no danger need be apprehended. The anticipated evil of leaving the superincumbent strata unsupported, by pumping up the sand, and thereby endangering the stability of the surface ground, was worthy of very little consideration in our present state of knowledge on the subject. No such evil could accrue if the boring were carried through the sand, and some depth into the chalk. The difficulties hitherto met with in the construction of deep wells in London were all to be traced to the error of discontinuing the process of boring on arriving at the sand.

Economy.—Mr. Farraday stated that the expense of the works in connection with the wells recently sunk in the front and rear of the National Gallery, that is, the cost of the engine and of laying pipes to the different sites, deducting every thing connected with the fountains, amounted to 9,000*l.* The yearly cost of supplying 100 gallons per minute by the engine and through the pipes was now contracted for at the sum of 500*l.* For the same water Government had been paying 1,000*l.* yearly. Then, by some short calculation, it was proved that the new system was one of economy, effecting a saving of some hundreds annually, and worthy of general adoption. The contractors and engineers are Messrs. Easton and Amos. He further stated, that in any neighbourhood, if 700 or 800 householders would unite, they might have a well of their own, and thereby a larger supply of better water than they now have for little more than half of what they now pay. The distance from the surface of the ground to the water is 150 feet.

Consequences.—Mr. Farraday anticipated the probable consequences of sinking many such wells in London; and combated the idea that by the daily extracting a large quantity of water the supply would in time be exhausted. Before such an evil could present itself a number of the smaller rivers in the neighbourhood of London must be exhausted, such as the Wandle and the Colne, which are nothing but the overflowings of the water in the sand strata, and consequently placed above the source of the proposed artesian wells.

A correspondent remarks, "With all due deference to the judgment of Dr. Farraday (and perhaps I may be under some misapprehension) some statements on the economy of wells were made, that I can hardly agree with. I understood Dr. F. to say, that the expense of the works, as before stated, amounted to 9,000*l.*; now to take this at an interest of 3½ per cent. as he did, is manifestly much too low. I should perhaps hesitate in determining what would be a fair per centage for money laid out in this kind of work, but I should say it certainly should not be less than 7 per cent., taking repairs, and wear and tear into consideration, and that in the course of years substantial repairs will be required. Seven per cent. will amount to something like 639*l.* per annum, which, added to the 500*l.*, will make rather more than the 1,000*l.* before mentioned

I may be in error, or the superior quality of the water may, perhaps, be some compensasation for the extra expense.

The subject of artesian wells is now becoming so important, that every information is valuable, and may therefore excuse these remarks.

The *new* machine, brought forward by Professor F., for raising water, is certainly beautiful in principle, but, unfortunately for those who lay claim to the invention, is of old date. None the worse for that, however; and the principle may be applied with very great benefit on some of the low lands of England. The description of this machine may be found in a tract by Venturi, containing his experiments on the motion of fluids, translated from the French by W. Nicholson, the second edition of which was published in 1799, headed thus:—"It is possible, by means of a fall of water, to drain a piece of ground without the help of machines, even though the ground should lie on a lower level than the established current below the fall." The principle, I believe, was carried out by Venturi, in one of the Italian states.

M. G."

Another Artesian Well.—A plan is being entertained by the benchers of Lincoln's Inn to re-erect the fountain which formerly stood in the centre of the square which now forms the new plantation. It is proposed to sink an Artesian well, and to supply the whole of the chambers in the inn with water, which can be done at a much more reasonable rate than the present supply.

Window cleaning.—The following method of cleaning windows has been forwarded to us, and, if correct, possesses many advantages over the old system of using whiting, &c.:—The window is first dusted with a bunch of feathers or a dusting brush, and when all the dust is thoroughly removed, a bowl of boiling-hot water is placed at the base of the window, the steam immediately covers the glass, which is removed by a wash-leather, and finished off with another quite clean and dry. This method saves time, prevents that cloudy appearance left by whiting, and produces a more brilliant and durable polish than any other.

THE PREVENTION OF SMOKE.

There are few nuisances more generally offensive, or producing a greater amount of discomfort, than the dense smoke allowed to issue from steam-engine and other furnaces. To those who live near such, it is, moreover, the cause of much expense; in fact, all the inhabitants of a town, where there are many furnaces, suffer very materially in their pocket, if not in their health. Every endeavour to remedy it deserves serious attention.

We have recently seen in operation one of the patent boiler-furnaces, put up by Chanter and Co. In order to prevent smoke all that is required is, to produce perfect combustion, by which, of course, a saving is effected; and it seemed to us that this was effected in a considerable degree by the furnace in question. The arrangement has two objects; first, to prevent the formation of clinkers, by the action of moveable bars, and secondly, to supply heated fresh air to the unconsumed gases about to pass up the chimney, and, by throwing them back on to the flame to ignite them. The means used are simple. The bars of the grate in contact, dentated on their upper surface, are moved, by hand or by other power, forwards and backwards in their horizontal position; the alternate bars in the same direction and oppositely to their immediate neighbours. This breaks up the caking coal, and keeps the fire brisk and clear. The bars thin down to the lower edge, which is circular in form, and through their mass are round holes to diminish the weight of the bars, and to render them more durable by constant cooling. Each indent of the toothed surface is bevelled down to where the bars separate by decreasing thickness: and thus the access of air through the whole fire is very diffused. As to the second object—where combustion is not perfect, the unconsumed gases rise above the flame, and pass on with the draught. These, in Messrs. Chanter's arrangement, are met above the bridge of the furnace by air heated from a chamber below, and let down upon them from a hollow arch. Thus they are forced down upon the flame, mingled with air necessary for their combustion, at a suitable temperature, and so consumed.

THE ERECTION OF STEAM ENGINES.

Sir,—Having seen an account in the newspapers of an explosion of a steam-boiler at a flour-mill adjoining the Surrey Canal, near the bridge in the Old Kent Road, this afternoon, my curiosity led me to the spot. The building which contained the steam-engine, I should think, from its form, was originally a wind-mill, built of brick of circular plan. From the information I obtained of one man who lived near the spot, he said, from the noise it made by the explosion, he thought it was an earthquake, but he was soon informed by a neighbour that the mill-engine had exploded. The destruction of the round building which contained the engine is complete, and an adjoining building very much shaken, but little damage is done to the buildings that are adjacent; the only person injured was the proprietor of the mill, and he is going on favourably. The boiler was sent into the air a great height, and descended on the other side of the canal, a distance of nearly 200 feet, sinking in the ground a considerable depth. On going to the other side of the canal to view the boiler, which was one of the tubular make, I there saw the machine, which had apparently pitched head first into the ground with the whole of one side, under the tube being rent along the rivets and likewise away from the end plates, and the whole pressed up into the air upwards of 6 feet from the bottom plates.

My first impression was, that too much stress had been upon the boiler; but, on examining the plates, which I dare say when new were ½-inch, I came to the conclusion that the engine had been improperly managed, as the boiler gave sufficient evidence of having been worked with little or no water at various times; the plates under the tubes varying from $\frac{3}{16}$ths to $\frac{1}{8}$ths of an inch: the bottom plates appeared burnt and much thinner than the other plates: the valve of the safety-pipe worked with ease. The cause of the accident, I have no doubt, was, that at the time of the explosion the boiler being without water, the plates being

red-hot had generated gas, combustion then took place, and the result ended in the destruction of the mill,—a severe injury to the proprietor who worked the mill (probably quite ignorant of working a steam-engine, judging from the nature of the accident); and, further, a severe loss, by the destruction of his property and loss of business.

There were three respectable individuals on the ground at the same time as myself, and one, in particular, appeared to know somewhat about steam-engines; a highly respectable gentleman came to the spot about the same time, and all appeared to be of one opinion as to the cause of the accident, and that was, as I have before stated; but one of the three, whom I will describe as Mr. A., said to the gentleman, Who is to pay for the damage done to the different buildings? Oh! said the gentleman, the miller must. Mr. A. said, He is a poor man; he was a poor man before this accident, and I am sure this will make him in a much worse condition: the bodily injury he has received, and the working of his mind, are, I think, sufficient punishment for him. Now, Sir, from this accident, and this conversation, I turn my attention to the question of protection.

It seems that the fire-insurance establishments in London will not take any insurance where a building contains a steam-engine, for less than 4s. 6d. per cent., and persons occupying premises adjoining steam-engines have to pay large premiums.

Of late my professional occupation has been such as to lead me into localities where different manufacturing businesses are carried on, and I was surprised at the number of steam-engines employed in London, varying from one-horse to twelve-horse power. Now you will ask me, by whom are these steam-engines worked? Why they are worked by any person, no matter what trade he is, so that they can get one for the least amount of wages, and not by engineers or men of science! Then why should we be surprised at accidents of this description occurring? and who are to pay for the damage done by these explosions? Most of the small engines are put up in the cheapest way possible, and the proprietor is often without capital. From the insurance office they do not obtain any cash, as the accident is by explosion and not by fire; and then to sue these men is making bad worse. Then, do not these steam-engines and steam-boilers, in general, require Government authority? We cannot build a house or other building without the inspection of a district surveyor, to see the law carefully carried out, for the safety and general welfare of the community at large;—a railroad cannot be worked until inspected and certified by a Government officer that the same is properly done, and in a fit state for the use of the public safely;—but steam-engines, and steam-boilers, that affect the lives of the people in general, and the safety of buildings, are under no control, nor even the men that work them. Why should there not be a district surveying engineer, to inspect the making and erecting of these engines, and also steam-boilers, for whatever purpose they may be used; and a monthly inspection of them to see their working order, and that proper men are working them? and these men should be licensed and numbered in the same way as public stage drivers; and the erecting of steam engines, and steam-boilers, and all alterations should be in the same way as houses, by the Buildings Act, under control. Such a course, I think, would put a stop to many accidents; it would improve the working order of small engines, bring into employ a proper description of men, and make life and property more secure than it is at present.

The dimensions of the boiler.

13 ft. 7 in. long.
5 „ 2 „ diameter of the boiler.
2 „ 0 „ do. of the tube, at one end.
1 „ 6 „ do. do. at the other.

Man-hole, 16 inches by 11 inches.

The hole in which the valve-pipe was fixed, 1¼ in. diameter.

Hoxton, May 23rd. ARCHI.

CHEAP GAS.—The two existing gas companies in Liverpool have pledged themselves to reduce the price of gas, on the 1st of January next, to 4s. 6d. per 1,000 cubic feet.

ON THE MARBLES OF IRELAND.

MR. WILKINSON has laid before the Dublin Geological Society some valuable information on the marbles of Ireland, with the view of inducing architects to employ them in their designs rather than resorting at all times to those of Italy. We are glad to assist in circulating it.

Although the use of marble or ornamental stone in internal decoration is as yet very limited, there can be but little doubt that with the advancing improvement of the country, marble will hereafter be more extensively brought into use, and made to contribute both to the ornament and solidity of our edifices much beyond the present practice; and there is no doubt that with greater use much improvement would be made in the mode of working the material. To those who may be of opinion that the labour of converting the material to use may be an impediment to its more general adoption, it may be proper to make a comparison between the labour encountered in completing the almost innumerable sculptures which remain to us of ancient Egypt, worked out of the hardest basalts, granites, porphyritic rocks, and the difficulties encountered by artists in the use of marble rocks, the difficulties bearing about the same relative proportion as the use of marble would to that of plaster. The use of marble at the present day, and for the purposes to which it is most commonly applied, is very different from the practice of a former age. Every one must be familiar with the ordinary mode in which marble is applied in the construction of common chimney-pieces consisting of nothing more than the division of the block into a number of slabs, which, by the aid of plaster of Paris and iron holdfasts, are secured together in imitation of a solid mass. However sufficient this may be for ordinary purposes, it is certainly very inferior to the construction from the solid enduring stone. In all the ancient domestic buildings of the country we find the solid chimney pieces constructed of limestone or dark marbles of the locality, and where undisturbed these are generally still in a sound and perfect state. Old street-buildings in the west of Ireland, and at Kilmallock in particular, present examples of this construction, and possess a very pleasing outline. Instances will very often occur in country mansions or public buildings in the vicinity of which local marbles are attainable, in which such constructions might be imitated with great economy and effect, and where for many architectural purposes it might with much advantage be very extensively applied.

The physical or external character of the marbles constitutes the chief consideration with reference to their use for decoration or ornamental architecture, their colour and internal structure being the most important. Their chemical character has reference more to the facility with which they may be converted into use, and their capability of receiving and retaining a certain polish. In their simplest and purest state, marbles chiefly consist of carbonate of lime, which is of a white colour; the whitest kind, however, is frequently associated with quartz or silex, which more or less deteriorates it. This is more or less united both chemically and mechanically in various ways with nearly all the marbles. The variations in colour arise chiefly from accidental causes, in the greater or less admixture of carbon, or the stains of various metallic oxides, or the sectional outlines of embedded fossils. Magnesia enters largely into the serpentine variety of marble. The more chrystalline and least earthy marbles are the least durable. The compact or finely granular crystalline marbles being superior to those which are largely crystalline or of a slaty texture. Almost all the varieties burn into quick lime; several of them, however, exfoliate in the conversion before they become caustic, and fall into sand when exposed to the ordinary mode of separating the carbonic acid; such qualities are, therefore, very inferior for ordinary cement, as they make a costly and meagre mortar; it is, however, to their use as materials for decoration that the present observations are chiefly intended to relate.

The colours of the marbles of Ireland are almost as numerous as those obtained from Italy. The dark colours vary from jet black to dark dove colour, purple, blue, and grey. The light colours vary from the pure snow-white to the celined, cream-coloured, pink, and light grey. The variegated, consist of the serpentine, black and white-veined, mottled, and those marked with fossil organic remains. The serpentine is here included from its common use for the purposes to which marble is applied, and from its being so commonly called the "green marble," although it is not, strictly speaking, a marble. The black marbles, which are those of most value in Ireland, are extensively met with, and belong to the formation familiarly known as the lower limestone. The merchantable beds of the best quality are met with in the counties of Galway, Limerick, Carlow, and Kilkenny; in the counties of Mayo and Waterford black marble is also met with. At the former places they have been extensively worked.

The best quarries are considered to be those close to the town of Galway, near the bank of Lough Corrib. It occurs there in three beds, varying from about 9 to 12 inches in thickness. One of these is called the *London* bed, most of the *black marble* raised from it being exported to London; blocks are raised from it of an average size of about 5 to 10 feet in length, and 4 to 5 feet in width; blocks of the size of 20 feet long may be raised. Some in length of 16 feet have been exported, and converted at the Esher-street marble-works in London into a magnificent staircase for the Duke of Hamilton, in Scotland; the wide steps, large landings, and solid carved balustrades being formed of this marble worked to a beautiful jet-black polish; and, doubtless, when brilliantly lighted, and surrounded by various other brilliant accessories appertaining to a palatial residence, will produce an effect of princely grandeur, which to a contemplative mind would originate reflections on its present use, and the countless centuries it has laid dormant in its native beds, where it has been protected by the overlaying limestone from the violent disturbance which its broken and rugged surface exhibits; nor in a less degree would it originate reflection on the rude labours of those who, ignorant of its destiny, have raised it from its native bed, and the numerous hands and skilful artists it has given employment to in its passage to its present destination. The marble beds are covered in the new quarries by about twenty feet of limestone, the raising of which adds much to the expense of obtaining it, although a considerable sale occurs of the limestone for common building purposes. Except near the marble beds the quarrying of it is effected by gunpowder. A considerable quantity of this marble is sawn by water power into slabs, and exported from Galway in that state to England and America. These marble beds most likely embrace a considerable area, and also continue under the water of Lough Corrib, with which they are now nearly on a level. At Oughterard, the western extremity of the limestone formation, and in several other parts of it, similar marble beds are met with and worked; those at Oughterard, in the opinion of the marble-workers in London, contain more or less silica, which renders them less valuable. At Limerick considerable quantities of black marble are raised, and both used in the locality and exported. At Carlow and Kilkenny very fine black marble is raised; at Kilkenny the best beds, which were very thin, have, I am informed, been nearly exhausted. Most of the marble obtained from Kilkenny abounds with shells, and which become more marked and conspicuous as the marble becomes dry and exposed. Chimney-pieces made from the Kilkenny marble are to be met with in most parts of Ireland, and are familiarly known, an extensive use of this marble having at one time prevailed: that which is a jet black, and free from shells, is now more generally esteemed. The polish of black marble is considerably affected by dampness, and is much preserved and improved by being kept dry.

Wherever the black marble beds are met with they are assorted with the limestone beds, and the difference in quality appears almost accidental; some of the over or underlying beds often present a strong contrast in the quality of the stone. In other places there is a gradation in character from the adjoining ordinary limestone to the fine marble. In the impure limestone formation of the calp series, beds of black marble are frequent. They are

generally more or less marked with fossils, and inferior to those beds belonging to the lower or light-coloured limestone formations, and seldom receive a good polish. Wherever the limestone formation prevails in which the marble beds occur, the economy of raising it is dependant on the depth of overlaying rock or soil which requires to be removed, and of the demand which exists in the neighbouroood for the common rock, either for masonry or burning into lime. In some localities the limestone rock itself more than repays the cost of removing it; and in those localities where this formation prevails these considerations and the quality of the marble beds determine the economy of raising it. Except at Galway and Limerick, where much of it is exported, it is almost solely used in the surrounding localities for ordinary purposes, and most extensively for large grave stones, for which purpose it is sawn into slabs of three or four inches thick, and for this the demand is very considerable. The best qualities, however, are seldom so used.

Dark gray and dark mottled gray marbles are met with chiefly in the King's County and several parts of the county of Cork. Near Tullamore, marble is obtained in large blocks capable of receiving a fine polish, and considerable use is made of it for chimney-pieces and work of that kind. The limestone around Cork produces easy working marble of a light gray or dove colour, and more or less mottled, and receives a good polish. In the primary districts of the county Donegal, a light gray and bluish-gray coloured marble, of close grain, is met with to a great extent; most of it, however, hard to work from the quantity of silex it contains. The same kind, and of a bluish tint, is also met with very frequently in Connemara. Marble of this description is common to most primary districts; it is compact in texture, but does not often produce a satisfactory polish. Most of the primary limestones are met with in exposed ridges of surface rock, alternating with or embedded between rocks of the slate formation, and the strata generally possess a vertical or strongly inclined direction. In the northern portion of the county of Donegal it is, however, very frequently met with in successive horizontal beds and easily quarried. In the counties of Donegal and Galway primary limestone of a coarsely crystalline texture is abundant, polishes very well, and varies in colour considerably. Most of the limestones of the country which are of a fine grain are highly crystalline, are susceptible of a polish, and produce a light gray and bluish-gray colour. Of the light coloured limestones the pure white is most esteemed; it is met with in Connemara, and in several localities is exceedingly compact and hard; it is found in narrow, vertical or highly inclined seams between the slate rocks, and contains veins parallel with the vertical face of the seams, which prevent any cubical masses beyond a small size from being obtained—its great hardness in conversion, and the difficulty of quarrying it renders its use very limited.

White marble occurs in the western portion of the county Donegal, and differs much from that of Connemara; it is coarsely granular, of comparatively easy conversion, can be obtained in cubical blocks and in great quantities; its very coarsely granular texture, however, is prejudicial to it for many purposes. Some of this marble has been employed in sculpture, and has appeared in the exhibition of the Hibernian Academy. In comparison with the white marbles of Italy, and that from Carrara, which is the kind chiefly imported into Ireland, the white marbles of Ireland are certainly inferior for sculpture and the ordinary uses to which white marble is applied; where, however, it can be boldly used in these localities where the expense of carriage would be much avoided, there is no doubt that it may be frequently employed with much advantage for many purposes.

At Chevy, near Dungannon, very delicate *cream-coloured marble* is obtained; very compact in texture, receives a high degree of polish, and blocks of great length can be procured. The coarsely crystalline and fossiliferous limestone at Ardbraccon produces light-coloured marble of easy conversion. Of the variegated marbles of Ireland, the *sienna* of the best quality is, perhaps, the most beautiful; it is met with in the King's County in several places. The best I am familiar with is veined or mottled sienna, obtained near the Seven Churches. Some of it has been wrought into chimney-pieces and other ornamental purposes at the works at Killaloe; it is susceptible of a high polish, and exhibits many bright and distinct colours. Marble of the same character also prevails, differing in colour, having a dove-coloured ground veined or mottled with the sienna colour. In the county Armagh a sienna, or rather *brownish-red marble*, is met with, containing great numbers of fossil shells, with which it is strongly marked; several varieties of colour from a very light reddish brown to a rather dark red are also met with, and more or less marked with shells. At Pallaskenry, in the county Limerick, a dark red and mottled marble is abundant, and has been much used. A red-coloured marble, of a compact but slaty texture, occurs in the county of Cork, extending from the city in a narrow seam, as far as Ballincollig barracks, a distance of several miles; it is hard to work, and dull in colour, but was at one time extensively used. The *serpentine or green marble* of Connemara is, some of it, very beautiful; generally, however, it is of a dull green colour—the injudicious mode of raising it by blasting with gunpowder, has much injured most of what has been raised, and considerably prejudiced the sale of it. Blocks of considerable size, from which large slabs can be obtained, can be raised, and many are found lying on the surface of the ground near where the rock is met. The difficulty of conveying it over bad roads, and the too high price asked for it by the proprietors, in comparison with what green continental marble can be obtained for, are impediments against its more extended use. Black and white marble, and that of a mottled character, occurs in several localities; it is quarried near Cork, in the counties of Waterford, Longford, and Kerry, and some of the varieties are beautiful. That obtained near Mitchelstown is well marked, and receives a high polish. The limestone obtained near the Seven Churches in the King's County, when polished, produces a good marble of an even gray colour. It is strongly mottled with very numerous fossil organic remains, which, in the opinion of many persons, gives it a very pleasing appearance. It is easily worked and raised from the quarries in their beds. It may be remarked that this marble in a polished state, has been used in the construction of one of the principal ruins at the Seven Churches. Some of the stones retain their polish to this time; others exhibit decay, and thereby the variable quality of the different beds.

THE BROAD AND NARROW GAUGES.

A CONTEST between the advocates of these two methods adopted in the construction of railways, is exciting considerable interest at the present time in several Parliamentary committees. The broad gauge is almost exclusively confined to the western districts, and the question is, whether it shall be extended into the northern railways now under consideration. It appears that there are 333 miles of railroad on the broad gauge in regular working, and 600 more proposed to be constructed; while of the 4-feet 8½-inch there are 1,530 miles in existence, and 1,264 more in contemplation. At the time of constructing the Great Western line it is probable that the general connection of railways with each other was hardly contemplated, and the universal adoption of a uniform gauge not considered of that importance it has since proved to be. To remove this difficulty Mr. Brunel has invented a machine for shifting luggage from one gauge to the other, and on Saturday last its practicability was tested at the Paddington terminus of the Great Western Railway. The place of exhibition was a brick building, carrying a set of levers which lift a pair of rails on which a traversing frame works. From each corner of this frame there descends a hook. These hooks are attached below to the waggon body, which has to be lifted from one gauge to the other. The waggon bodies on the narrow gauge are carried upon the usual waggon frames employed by narrow-gauge companies, and when shifted to the broad gauge are placed in iron waggons constructed for the Great Western Company at their works at Swindon.

The mode of working this traversing frame from one gauge to the other may be thus described.—A head of water 55 feet from the line of rails acts in a cylinder, and a set of valves throw a pressure of water either above or below the piston. When the pressure is above the piston it elevates the traversing frame, and when below it causes it to descend. A counter-balance is also employed, and acts in connection with the water power. The cylinder is 19½ inches, and the water pipe 5½ inches in diameter. When the traversing frame is at rest it is perfectly horizontal, but, during the action of lifting, it assumes a slight inclination, under the controul of the man who works the levers. By this means the load which has to be moved traverses from one line to the other by its own gravity.

Thirty-two tons of coke were shifted from one gauge to the other in seven minutes, and on another trial 10 tons were shifted in a minute and a half. General Pasley has, we understand, inspected the machine and highly approves of it. The cause of contention may, therefore, be considered as removed, and the question now before the public is simply that of expense in the construction and working of the respective gauges. The difference in the cost of the broad over the narrow gauge is 6½ per cent in earth work, and 7 per cent in the purchase of land, with a larger expenditure in the construction of carriages, &c., and with increased weight; to counterbalance which Mr. Brunel contends that it provides a more rapid, safe, regular, and luxurious mode of transit, and is in every respect superior.

INSTITUTION OF CIVIL ENGINEERS.

JUNE 3.—Sir John Rennie, President, in the chair.

The first paper read was "On the Corrosion of Metals," by Mr. R. Adie, Liverpool. The object of the communication was to give an experimental proof of the fact of water, when saturated with common salt, preserving to a great extent the surfaces of oxidizable metals from corrosion, by the joint action of air and water; and also to shew that water, or water containing a saline solution, does not act as a corroding agent without the aid of the oxygen of the atmosphere. These positions were demonstrated by the details of several series of very interesting experiments, which were purely of a chemical tendency, leaving to the engineers the application to practice of the results obtained. The details were also given of some experiments made to ascertain the quantity of oxygen dissolved by water under different circumstances: whence it was shewn that brine, and some other saline solutions, contain much less dissolved oxygen than sea or ordinary water; the discovery of this fact suggested the experiments on the application of brine as a preserver of iron. The object of the last set of experiments was to determine, by trial, the rates of corrosion of metals in fresh-water, sea-water, and saturated brine. The results demonstrated that sea-water corrodes the quickest, fresh-water less rapidly, and brine very much slower than either. The circumstance was incidentally mentioned of the use of common salt for preserving ships' timbers, for which purposes the spaces between the ribs of some of the North American ships are frequently packed with rock salt, and the effect has proved very advantageous to the duration of the timber without affection of the metal fastenings, as would have been supposed.

A paper by Mr. W. Gale (Glasgow), pointed out the advantages of the moveable jib crane, for the purposes of building. It was stated to have been originally invented by James Watt, for the Bell Rock Lighthouse, but in a communication from Mr. R. Stevenson (Edinburgh) which was also read, with extracts from the history of that lighthouse, the invention was claimed by Mr. Stevenson. It appeared that the crane was used very extensively, but that some defects existed in its construction, for which the author suggested remedies which he had applied successfully, and for which he gave the necessary details of calculation and drawings, without which they would be with difficulty comprehended.

The monthly ballot took place when Messrs. Frank Forster, T. L. Gooch, and W. Lewin were elected as members; and Messrs. W. P. Marshall, W. Lawford, G. Lawford, and W. B. Buddicom, as associates,

Correspondence.

LANDING STAGES, LIVERPOOL.

SIR,—Some time in March last I forwarded a design for the approval of the chairman and committee of the Liverpool Docks, in answer to the advertisements for the best plan for a landing stage at George's Pier head. This is now upwards of two months since, and as yet no one seems to have heard a single word more about the matter. Whether any decision is arrived at or not, I think that, where the time is so protracted as it is in this instance, the secretary of the committee should have forwarded some reason for the delay, either to THE BUILDER or other periodical current amongst us.

Perhaps the premiums are not to be given at all, and we shall yet see some favourite carrying out piecemeal the gathered ideas from the 200 designs, which number it was rumoured were sent in! I sincerely hope, for the credit of such a respectable body as the committee of the Liverpool Docks, nothing of the kind will take place.

Through your numerous correspondents you may be able to furnish us with some information of the actual state of the case.

I am, Sir, &c., A. I. C. E.

*** The following advertisement has since appeared, and seems far from satisfactory:—"The committee, of the Liverpool Docks having, in conformity with their advertisement of the 6th of February last, awarded premiums to two of the designs for landing stages, which, though they cannot either of them be acted upon, appear to possess the fewest objections in principle, and to approach the nearest in general idea to what will have to be adopted, do hereby give notice to the several unsuccessful competitors that their respective designs will be returned upon application being made for them; or the committee are willing to allow the use of the spare rooms in this building, without charge, for a limited period, for the purpose of exhibiting the designs to the public. Competitors desirous of having their designs exhibited, are therefore requested to appoint from among themselves some party or parties to take charge of and to be responsible for them, and signify their wish to the undersigned, within fourteen days from this date, in order that the necessary steps may be taken. All expenses connected with the exhibition to be borne by the competitors."

CEMENTS.—CEMENT ON IRON.

SIR,—A correspondent in Number 115 wishes me to explain the difference in the properties of Maude's Portland Cement, Pulham's Portland-stone Cement, and Austin's Stone-colour Cement, they all being described as a close resemblance to Portland stone. I do not undertake to explain the properties more than I have done in my former article; but I may say, in answer, that two out of the three are not a close resemblance to Portland stone, and, indeed, I was not aware that there was a cement in use called Austin's Stone-colour Cement. I herewith send you a piece of Pulham's Portland-stone Cement, not made for a specimen, but cut off, after being in weather six years, where an alteration was made, and that you may decide which is an *imitation of Portland stone*, as you will probably have an opportunity of seeing some of Maude's Portland Cement, as in Threadneedle-street, and Austin's vases, &c., in the New-road.

I should be glad to see the question answered, asked by a plasterer in No. 112,—the reason the basins in Trafalgar-square were repaired with Roman cement, the bottoms being laid with Maude's Portland Cement; for, as he says, it would be well to know.

A subscriber, who wants to know the best cement for running mouldings on iron girders, should be told cement or plaster is not run on iron girders; they must have battens or ledges fastened to them, and then lathed in the ordinary way, and then plastered.

Hoddesdon. JAMES PULHAM.

*** We may not venture to institute comparisons without a longer acquaintance with the cement referred to. Its appearance is good

As relates to running mouldings on iron girders, another correspondent says this can be safely done if care is used, with Johns' Stucco Cement.

Miscellanea.

ETON COLLEGE CHAPEL.—Plans are being prepared by a limited number of architects, in competition, for the perfect restoration of this chapel. The competitors are said to be Messrs. Buckler, Butterfield, Elmslie, Deeson, Derick, and Ferrey. Mr. Shaw and another architect are to decide on their merits. Mr. Shaw being the attached architect of the college, the whole proceedings seem somewhat singular.

VACANCY IN THE ENGINEERING DEPARTMENT AT HULL.—The appointment of resident engineer to the Dock Company at Kingston-upon-Hull, will shortly become vacant by the resignation of Mr. M. Lane. Candidates are to forward their testimonials to the secretary of the company on or before the 14th instant. The salary is upwards of 300*l.* per annum.

BRONZE WORKS OF ART.—Some misunderstanding having lately taken place on the part of the Custom-House authorities, as to the meaning of the resolution of the House of Commons admitting "bronze works of art" duty free, it has been decided that all works of art, whether composed of bronze or other metal, are to be delivered free of duty.

LIGHT FOR ALL NATIONS.—The stupenduous undertaking of erecting a lighthouse on the Godwin Sands is at length completed. Mr. Bush, the engineer, has determined upon throwing it open to public inspection during the present month, in aid of the funds of the Royal Free Hospital in Gray's Inn-road. The terms of admission are 2s. 6d. each person.

RAILWAY SPEED.—The distance between London and Birmingham was lately performed in one hour and forty-five minutes. One hundred and ten miles in one hundred and five minutes!

THE NATIONAL GALLERY.—Mr. Eastlake, R.A. has addressed a letter to Sir Robert Peel, pointing out the unfitness of the present building for its purpose. We shall revert to it next week.

Tenders.

TENDERS for the erection of a New Rectory at Pyrford, near Ripley, in the county of Surrey, under the superintendence of Mr. H. Baker, architect, of Upper Gower-street.

Pearse and Guerrier	£1,087
Boxall	1,018
Lothere	1,010
Ire	999
Winsland	987
Allen	935
Mason	883

Tenders delivered May 30th, 1845, for building seven Private Houses, also Dwelling House, with Shops, &c., for E. Lacey, Esq., Mr. T. Coe, surveyor.

Jay	£4,418
Gerry	4,286
Ashby	4,271
Elston	4,195
Lawrence	4,165
Lefevre	4,085
Willson	3,994

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the performance of the necessary works in the construction of a New Dock in the Borough of Kingston-upon-Hull.

For Building the Carcasses of certain first-rate Houses, with Shop Fronts, in the new line of Oxford-street, leading into Holborn.

For executing Works on the Leeds, Dewsbury, and Manchester Railway, being a distance of about 4¼ miles. The principal work on this division is the summit Tunnel, near Morley, which is upwards of 3,000 yards in length.

For the erection of Schools, and a Master's House, and also a new Farm-house and Offices, on the Estate of the Rev. E. K. Benyon, near Bury St. Edmunds, Suffolk.

For constructing about 450 feet of new Wharf, along the River-side, in the Town of Wisbeach, and for erecting a new Crane and Warehouse for the Corporation of Wisbeach.

For the execution of a New Harbour at Greenock.

For the supplying of certain Mines in Cornwall, for twelve months from Midsummer next, with Norway Timber, half Dram and half Longsund, of good quality and average length. The probable quantity required is 710 loads.

For Building a Sewer in the King's Road, St. Pancras, of the dimensions of 4 feet 6 inches by 2 feet 9 inches, for a length of 250 feet.

For building the intended Somerset County Lunatic Asylum.

For the Works necessary in extending the Tower Hamlet Sewers, in one District to the length of 2,570 feet, in a second District to the length of 1,915 feet, and in a third District to the length of 660 feet.

For erecting the New Church of St. Andrew, at Wakefield, Yorkshire.

For painting, and keeping in repair the Lanterns and Fittings of the several Gas Lamps in the Parish of St. Mary, Islington, from Midsummer 1845 to Midsummer 1846.

For the construction of Two Divisions of the Chester and Holyhead Railway, being Nos. 8 and 12. No. 8 contains a length of 7 miles and 54 chains. No. 12 contains a length of 5 miles and 26 chains.

For erecting a New Parsonage House at Iken, near Oxford, Suffolk.

For painting the exterior Wood and Metal Work of the British Infirmary.

For supplying the Lords, Bailiff, and Jurats of Romney Marsh with 2,000 six-feet Deal Ends, 3 by 12, either white or yellow American, at per 100, (of 120 Ends).

For the erection of a Building in London for a highly patronised purpose, at the estimated cost of about 30,000*l.*

COMPETITIONS.

Plans, sections, and elevations for a Terminus, and other requisite accompanying offices, for the Great Southern and Western Railway, Ireland.

Designs for houses to be erected at Dover. The ground is nearly seven acres in extent, and lies on a gentle slope between the south-west boundary of Dover Castle and the town. A premium of fifty guineas is offered for the set that may be most approved of.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

The timber and other trees now standing upon the estate at Woodseaves, Salop. By order of the Lord Chancellor made in the cause "Dickin *v.* Barker."

At Eversden Wood, Cambridge: 80 Oak Timber Trees, clean, sound, and of useful dimensions.

At Bourn, Cambridge: a capital Fall of prime Oak Timber, comprising about 100 Trees of good dimensions.

At Brandon, near Coventry: several Thousand prime Oak Trees, and a quantity of Planks and Quarterings.

At Bourne, Cambridge: 63 Oak Timber Trees; many of them are of very excellent quality, of great length, and particularly clean and straight.

and excellent quality.

At Halstead, Essex: a quantity of capital Oak Timber, &c., in Great Spansey's Wood, near Halstead.

At Richardson's Wharf, Limehouse: a large quantity of superior dry and sound stock of Dantzic Yellow and Red Pine, Ash, Swedish and Memel Timber; about 10,000 White Spruce and Yellow Battens, &c.

At Concygre Wood, Rickling, Essex: 105 Oak Timber Trees of excellent quality.

At 17, Millbank-street, Westminster: a remarkably fine parcel of Marble, consisting of Statuary, Vein, Dove, Bardilla, Griotte, Black, and Black and Gold; also four 16-feet Column Blocks of Sicilian Marble.

At Wimbish Hall, near Saffron Waldon: 400 Oak, Ash, and Elm Timber Trees, many of large dimensions, and the whole useful for building or other purposes.

At the Angel Inn, Warminster: a quantity of very capital Oak, Ash, Elm, Beech, Larch, and other Timber Trees, comprising about 400 Trees and 150 Saplings.

At Ryston Hall, near Downham Market: a superior fall of Oak, Ash, Elm, and Fir Timber Trees, comprising 50 Large Oaks, from 30 to 40 feet in length; 20 smaller ones; 46 Ash and Elm Trees; 86 Old Spruce Firs; 5 Hornbeam, &c.

BY TENDER.

A Virgin Forest of Valuable Timber in Walachia. The principal part of the Trees is Oak. The said Forest may produce about 500,000 cubic feet of Timber.

At Little Bentley Hall, Essex: several Acres of Plantations, consisting of superior Firs, Larch, Spruce, &c., to be taken down by the Purchaser.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, June 9.—*Geographical*, 3, Waterloo-place, 8½ P.M.; *British Architects*, 16, Grosvenor-street, 8 P.M.

TUESDAY, 10.—*Medical and Chirurgical*, 53, Berners-street, 8½ P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.; *Zoological*, Hanover-Square, 8½ P.M.

WEDNESDAY, 11.—*Society of Arts*, Adelphi, 8 P.M.; *Geological*, Somerset-house, 8½ P.M.; *Pharmaceutical*, 17, Bloomsbury-square, 9 P.M.

THURSDAY, 12. — *Royal*, Somerset-house, 8½ P.M.; *Antiquaries*, Somerset-house, 8 P.M.; *Royal Society of Literature*, 4, St. Martin's-place, 4 P.M.; *Medico-Botanical*, 32, Sackville-street, 8 P.M.

FRIDAY, 13.—*Astronomical*, Somerset-house, 8 P.M.; *Philological*, 49, Pall-Mall, 8, P.M.

SATURDAY, 14.—*Royal Botanical*, Regent's-park, 4 P.M.

CHARGE FOR ADVERTISEMENTS IN "THE BUILDER."

	£.	s.	d.
For Sixty Words or less	0	5	0
Every additional Thirty Words	0	1	0
One Column	2	2	0
One entire Page	5	5	0
To workmen advertising for situations, the price will be reduced to	0	3	6

For a series of advertisements above 5s. a reduction will be made.

Advertisements forwarded from the country for insertion *must* be accompanied with a post-office order, according to the above scale.

Volume I., containing upwards of THREE HUNDRED ILLUSTRATIONS, elegantly bound in cloth, price 15s., and Volume II. containing upwards of FOUR HUNDRED ILLUSTRATIONS, price 17s. 6d. can still be had of all booksellers.

TO CORRESPONDENTS.

"S. C."—*Engravings in outline would not satisfy all our subscribers, though they might be preferred by the section represented by our obliging correspondent. We endeavour to meet the requirements of several distinct classes.*

"Discontent."—*Our correspondent, and many besides, should read the charming little story, called* "Old Jolliffe" (*published by Wright, Pall-Mall.*) "*There is much grief in the world, much trouble, but it should be our endeavour to teach all who are suffering that it is good to be so afflicted; for such a thought will create a contented spirit which will carry them through all their trials and pain!*"

"F. E. G."—*The stone laid with ceremony as the foundation stone is not always the* first. *We shall be glad to hear from him on other matters.*

"James Jones."—*The description shall appear.*

"W. Ray."—*The statement shall receive attention.*

"Works in France." — *A correspondent is anxious to have some information as to the works by London builders now going on in France.*

"History of a Competition."—*The statement of* "A Looker On" *being entirely personal, we must decline inserting it.*

"A Journeyman Plasterer" *is also declined, with thanks.*

"W. B." *says:—As many toll-houses are about to be erected in various parts of South Wales, I shall feel obliged if some of your numerous talented architectural correspondents will favour us with the most approved design for those constructions; one which will combine usefulness and economy with picturesque effect. The material generally used is masonry.*

"A Subscriber."—*If an opening be made in a wall dividing properties, the owner of the land on the other side may block it up.*

"I. T."—*Johns' patent stone colour stucco cement is probably the material inquired for. It may be obtained at Mr. Man's, 5, Maiden-lane, Cheapside.*

"A Young Builder."—*If the buildings were* bonâ fide *commenced before last January, sanctioned by the district surveyor, and are to be finished as first proposed, an additional thickness of walls cannot be insisted on.*

"A Builder" (*as to power of official referees*) and "P. W." *next week.*

Received: *Kelland's excellent edition of "Young's Lectures," part 5 (Taylor and Walton),—"The Westminster Review," for June,—Coghlan's "Hand Book for European Tourists" (Hughes, St. Martin's le Grand),—"Pictorial Gallery of Art," part 5 (C. Knight),—"Old England," part 18.*

ADVERTISEMENTS.

WHITE KNIGHTS' PARK.

THE BOTANIC GARDENS and WILDERNESS of this celebrated Domain will be OPEN for the admission of the Public, during the Summer season, on MONDAYS and THURSDAYS. Tickets of Admission, ONE SHILLING each person, and Family Tickets, to admit eight, FIVE SHILLINGS, may be obtained of Messrs. Scott and Moffatt, Architects, 20, Spring Gardens; of Mr. Frederick Chinnock, Estate Agency Office, 28, Regent-street; at the Offices of "The Builder," No. 2, York-street, Covent-garden, and "The Gardener's Gazette;" of Messrs. Richards and Rogers, Solicitors, 10, Friar-street, Reading; and at Mr. Welch's, "Berks Chronicle" Office, 12, Market-place, Reading.—Day Tickets to Reading are issued by the Great Western Railway.

ROYAL POLYTECHNIC INSTITUTION.—The ATMOSPHERIC RAILWAY exhibited by a Working Model, having a power to carry visitors. A CURIOUS MECHANICAL HAND on a person who has lost his natural hand. Dr. RYAN'S LECTURES on the CHEMISTRY of DOMESTIC LIFE daily, at a quarter past Three, and on Wednesday and Friday evenings at a quarter to Nine. Professor BACHHOFFNER'S varied LECTURES with brilliant Experiments. Lectures on Character, with Musical Illustrations, by Mr. J. Russell, accompanied by Dr. Wallis on the Piano-forte, on the evenings of Monday, Tuesday, and Thursday, at Eight o'clock. New and beautiful objects in the CHROMATROPE, PHYSIOSCOPE, PROTEOSCOPE, &c. NEW DISSOLVING VIEWS. SUBMARINE EXPERIMENTS by the DIVER and DIVING BELL. Working Models described daily.

Admission, 1s.; Schools, half-price.

HOWARD'S TRANSPARENT TRACING PAPER.—The many very high encomiums which have been passed on this article by those who have made trial of it, induces Mr. Howard to give it greater publicity. Sample books, containing seven different qualities, with prices, &c., can be sent by post to any part of the kingdom.—Orders directed to Mr. HOWARD, 23, Great Russell-street, Bloomsbury, will receive immediate attention.

E. G.'s TRACING-PAPER.—It is warranted to take Ink, Oil, or Water colour, and is sold by MESSRS. ROBERSON AND CO., SOLE AGENTS, 51, LONG-ACRE, at the following cash prices:—

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60 by 40, at 14*l.* 0s. per Ream, or 15s. 0d. per Quire.
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30 by 20, at 7*l.* 10s. „ 8s. 0d. „

N.B.—Every sheet is stamped with the Initials of the Manufacturer.

This beautiful and unequalled article is allowed to be the cheapest and most useful Paper hitherto introduced to the public, as will be best proved by a trial.

NOTICE TO INVENTORS.

OFFICE FOR PATENTS OF INVENTIONS and REGISTRATIONS of DESIGNS, 14, Lincoln's-inn-fields.—The printed INSTRUCTIONS gratis, and every information upon the subject of PROTECTION for INVENTIONS, either by Letters Patent or the Design Acts, may be had by applying personally, or by letter, prepaid, to Mr. Alexander Prince, at the office, 14, Lincoln's-inn-fields.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

HEAL & SON'S LIST OF BEDDING.—Containing a full description of weights, sizes, and prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of Bedding, sent free by post, on application to their establishment, the largest in London, exclusively for the manufacture and sale of Bedding (no Bedsteads or other furniture being kept). HEAL and SON, Feather Dressers and Bedding Manufacturers, 196, opposite the Chapel, Tottenham-court-road.

HOT WATER APPARATUS. — The attention of architects, builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of heating churches and chapels, halls, stair-cases, conservatories, forcing and green-houses, manufactories, and warehouses, kilns, rooms for drying timber, &c., and every variety of purpose for which artificial heat is required. Within the last twenty years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises. BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

DUTY *off* WINDOW GLASS. — On April the 6th, Squares stouter and of better make than formerly for Glazing purposes at 6d. per foot.

NURSERYMEN, MARKET GARDENERS, AND OTHERS requiring Small Glass, will find a greater variety of sizes (a large Stock of which is constantly on hand) than is kept by any other house in London, from 4d. per foot. Flattened Sheet, Stained, Fluted, the BIRMINGHAM Sheet Plate (superior in all respects to every other make), and Ornamental Glass of every description. Complete Lists of Glass, Lead, Colours, &c., at ready-money prices, may be had (gratis) on application to R. Cogan, at the Western Glass, Lead, and Colour Warehouse, 5, Princes-street, Leicester-square, London.

SURVEYORS, CONTRACTORS FOR PUBLIC WORKS, and the TRADE generally, sending specifications of quantities required, will receive by return of post an invoice at the very lowest cash prices.

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LUARD and BEEDHAM have a quantity of the above stone, of the best quality, direct from their Quarries at Allemange, which may be inspected at the Norway Sufferance Wharf, Greenwich.—Further particulars at Mr. G. GATES', 18, SOUTHWARK-SQUARE, SOUTHWARK.

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SAMUEL CUNDY begs to inform Architects, Builders, &c., that he is supplying VEIN MARBLE BOX CHIMNEY-PIECES, Opening 3 feet square, and 7 inch piers, for FORTY-FIVE SHILLINGS!

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Offer to Painters, Builders, &c., Painting Brushes of a quality far superior to those generally offered for sale, to which they beg to call the attention of all who prefer quality and durability to apparent cheapness.

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Sash Tools, and Common Tools.
Tar Brushes and Masons' Brushes, and all other Brushes used by Painters and Artists.

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Linseed Oil, 2s. 4d. per gallon.	Yellow Oker Powder, 6s. and 8s. per cwt.
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Turpentine, 3s. 3d. ditto.	Ditto, ditto, in Oil, 36s. and 42s. ditto.
Turpentine Varnish, 3s. ditto.	Crome Yellow, 8d., 10d., and 1s. 4d. per lb.
Paper Varnish, 12s. and 16s. ditto.	Spanish Brown, 6s. per cwt.
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Best ground White Lead, 26s. per cwt.	Gas Tar, 9s. ditto.
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And every description of dry and ground Colours, Varnishes, &c. CROWN GLASS, price as at the Manufactory; BRUSHES, at Makers' prices.

The Anti-corrosion Paint for every description of outside work, resisting all kinds of damp, and it never blisters or peels off; it has now stood the test for the last sixty years, and has been used by the Government in most of the Colonies and Dock-yards, having received the approbation of the Hon. Board of Ordnance, and other public bodies, at the LONDON COLOUR, LEAD, GLASS, OIL, and VARNISH WAREHOUSE, 27, Coleman-street, City.

*** Country Orders must be accompanied with a remittance, or reference for Payment in London.

HOLBORN AND FINSBURY SEWERS, MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,
STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, lane, or public way, or to carry off or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previous to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners will be cut off, and the parties making the same will subject themselves to a fine.

By order of the Court,
LEWIS C. HERTSLET, Clerk.